TELECOMMUNICATIONS AND INFORMATION TECHNOLOGY
MARKET OPPORTUNITIES
FOR U.S. SMALL AND MEDIUM-SIZED BUSINESSES

ExportIT Western Europe

HIGHLIGHTING GERMANY AND FRANCE

U.S. DEPARTMENT OF COMMERCE
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TABLE OF CONTENTS

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Information on the Office of Information Technologies can be found at http://exportIT.ita.doc.gov.

Information on the Office of Telecommunications Technologies can be found at http://telecom.ita.doc.gov.

FOREWORD

This report describes and analyzes the trends, key issues, and events in telecommunications, Internet and e-commerce adoption in western Europe, highlighting Germany and France, to create a framework from which U.S. small and medium-sized enterprises (SMEs) can make educated business decisions about entering these markets. The report analyzes economic, cultural, historical, and political factors influencing the adoption of information, Internet and e-commerce technologies. It also analyzes the status of telecommunications liberalization, competition in telecommunications services, and the deployment of new telecommunications technologies, and how these changes are affecting the adoption of the Internet and e-commerce. The report highlights issues and market opportunities relevant to U.S. SMEs in the information technology (IT) and telecommunications industries. Suggested market entry strategies for smaller firms, U.S. Department of Commerce and other resources to assist U.S. firms in market entry endeavors, and contacts in the United States and western Europe are provided.

The report is based on market research and analysis undertaken in western Europe in November 2001 by international trade specialists from the U.S. Department of Commerce International Trade Administration's Trade Development unit: Danielle Kriz of the Office of Information Technologies and Myles Denny-Brown of the Office of Telecommunications Technologies. They interviewed software, Internet, and telecommunications equipment and services providers, trade associations, industry analysts, and government officials in Berlin, Bonn, Cologne, Frankfurt, and Hamburg, Germany; and Paris, France. The work was actively supported by the International Trade Administration's U.S. and Foreign Commercial Service (US&FCS) market specialists, and the U.S. Department of State's Telecommunications Policy Officers, in the two countries. Information gathered from on-site interviews is supplemented with data from market research firms and an extensive review of available literature.

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TERMS AND ABBREVIATIONS

$	dollar figures cited in this report are U.S. dollars
€	Euro. The exchange rate used in this report is $0.88 = €1
2G	second generation (mobile communications)
2.5G	intermediate generation of mobile communications between 2G and 3G
3G	third generation (mobile communications)
ADSL	asymmetrical digital subscriber line
ARPU	average revenue per user
ART	Telecommunications Regulatory Authority (France)
ASP	application service provider
ATM	asynchronous transfer mode
B2B	business-to-business e-commerce
B2C	business-to-consumer e-commerce
BT	British Telecom
BTA	Agreement on Basic Telecommunications Services
CAGR	compound annual growth rate
CDMA	code division multiple access
CERT	computer emergency response team
CRM	customer relationship management
DM	Deutschemark. The exchange rate used in this report is $1 = 2.2 DM
DTAG	Deutsche Telekom AG
DTV	digital television
EC	European Commission
EDGE	enhanced data for GSM evolution
EDI	electronic data interchange
EIB	European Investment Bank
EMS	enhanced messaging service
ERP	enterprise resource planning
EU	European Union
FCC	Federal Communications Commission
FF	French Franc. The exchange rate used in this report is $1 = 7.33 FF
FT	France Télécom
G2B	government-to-business e-commerce

GATS	General Agreement on Trade in Services
GDP	gross domestic product
GPRS	general packet radio service
GPS	global positioning system
GSM	global system for mobile communications
IDC	International Data Corporation
IP	Internet protocol
IPO	initial public offering
IP/VPN	Internet protocol-based virtual private network
ISA	industry sector analysis
ISDN	integrated services digital network
ISAC	Industry Sector Advisory Committee
ISP	Internet service provider
IT	information technology
ITA	Information Technology Agreement
ITU	International Telecommunication Union
ITV	interactive digital television
kpbs	kilobits per second
LAN	local-area network
MMS	multimedia message service
MNC	multinational corporation
MVNO	mobile virtual network operator
NTDB	National Trade Data Bank
OECD	Organization for Economic Cooperation and Development
PAGSI	Government Action Program for an Information Society (France)
PC	personal computer
PDA	personal digital assistant
R&D	research and development
RegTP	Regulatory Authority for Telecommunications and Post (Germany)
SCM	supply chain management
SI	systems integrator
SIM	subscriber identification module (as in smart cards)
SME	small and medium-sized enterprise

SMS	short message service
TDMA	time division multiple access
UK	United Kingdom
UMTS	universal mobile telecommunications system
USEAC	U.S. Export Assistance Center
USTR	Office of the U.S. Trade Representative
VAT	value-added tax
VATM	German Association of Telecommunications and Value-Added Service Providers
VC	venture capitalist
VOIP	voice over Internet protocol
WAN	wide-area network
WAP	wireless application protocol
WLAN	wireless local-area network
WLL	wireless local loop
WTO	World Trade Organization
Y2K	Year 2000

EXECUTIVE SUMMARY

Western Europe has the world's second largest regional market for IT and telecommunications equipment and services, after that of North America, and it is growing rapidly. Western Europe's total market for IT and telecommunications in 2001 was $532 billion. The region offers numerous business opportunities for U.S. small and medium-sized enterprises (SMEs), whose products and services are highly regarded there. Germany and France, the first and third largest IT and telecommunications markets in the region, respectively, provide excellent opportunities for U.S. firms.

The rate of economic growth in western Europe has slowed, but is expected to pick up by 2003. The region's economic growth rate fell from 3.3 percent in 2000 to 1.7 percent in 2001, on the heels of the U.S. recession. This has led European telecommunications operators to cut back investments in their networks, and organizations to tighten their IT budgets. Nonetheless, the slowdown in western Europe has been less severe than in the United States, and economic recovery is expected to occur soon. After decelerating further to 1.5 percent in 2002, western Europe's economic growth rate is predicted to rebound to 2.9 percent in 2003. Further, the region's demand for information, Internet, and e-commerce technologies has outpaced these growth rates and is expected to rebound relatively quickly.

Generally speaking, western Europe lags six months to a year behind the United States in IT investments. European organizations are purchasing IT to increase their competitiveness and efficiency, and software and services lead these investments. Larger European firms are spending in advanced areas such as customer relationship management (CRM), supply chain management (SCM), e-business, data storage, and IT security, as well as handheld mobile devices. Smaller firms are spending on intranets, extranets, and enterprise resource planning (ERP) and other business software. Many organizations in the region postponed certain IT investments in the 1990s to accommodate spending related to European economic integration, the adoption of the euro, and Y2K remediation. Now that these priorities have been addressed, IT investments are expected to grow rapidly as organizations try to make up for lost time.

Privatization and liberalization over the past decade in mobile communications, data communications, and wireline markets have brought greater competition in various telecommunications services throughout the region. This in turn has driven investments in leading-edge telecommunications technologies, lowered many telecommunications costs, and facilitated development of the Internet and e-commerce. Nonetheless, competition in most wireline telecommunications markets remains limited to long-distance and international services; former national monopoly telecommunications operators remain the dominant providers of local voice and Internet services in most countries. This has limited the Internet penetration rate to less than 40 percent and the broadband penetration rate to less than three percent. Nevertheless, increasing access to the incumbents' local loop and falling prices for dial-up Internet and

DSL are expected to allow more rapid growth in broadband.

Second generation wireless continues to grow in western Europe, but operators are shifting from customer acquisition to revenue maximization. Many analysts expect Europe will leverage its global leadership in mobile communications to build rapid growth in mobile data usage as well. However, formerly rosy predictions of rapid deployment of third generation (3G) wireless have been tempered due to lack of appropriate telephones and heavy debt burdens of 3G operators. In the meantime, mobile operators are focusing on "interim" mobile data transmission technologies, known as 2.5G. The key question for the advancement of any "generation" of mobile data services in Europe is how operators can maximize revenues from these services to justify the massive costs of their licenses and building their networks.

E-commerce, particularly B2B, is growing in the region. Although some large European firms are quite advanced in their use of e-business technologies, many other European firms are not, and they are eager to catch up with their U.S. counterparts. B2C e-commerce has remained relatively limited compared to the United States and is developing more slowly than had been predicted.

The European Commission and governments of the EU Member States are encouraging and helping their citizens and industries to invest in and use information, Internet, and e-commerce technologies. The European Commission has worked to harmonize telecommunications, Internet, and e-commerce regulations throughout the region and has undertaken a broad range of policy initiatives and programs related to the development and deployment of the Internet and e-commerce within EU Member States. The *eEurope* initiative, E-Commerce Directive, and Digital Signatures Directive, among others, are shaping the region's IT and telecommunications markets. Governments throughout the region are developing or implementing programs to help firms, schools, government agencies, and other organizations increase their IT usage.

Market opportunities for U.S. SMEs are numerous. However, because of the slowdown in spending on many types of information and telecommunications technologies in western Europe, as well as the increasingly competitive landscape in more mature market segments, U.S. SMEs are advised to target particular niche and high-growth areas. In IT, the most attractive market segments are IT security and technologies to support the Internet and e-commerce. Business productivity technologies are a growth area as well. The SME end-user segment in Europe is expected to provide the most IT opportunities for U.S. SMEs.

Growing competition, falling profit margins from voice services, and the slowdown in telecommunications markets have driven European telecommunications operators to focus on three main areas to gain revenues and market share, and thus provide the best opportunities for U.S. suppliers: value-added services, broadband, and mobile data communications. Targeting incumbent telecommunications operators' competitors as well as business users of telecommunications

services is likely the best choice for U.S. SMEs.

Access to various western European markets has been facilitated by increasing economic integration throughout the EU. Nonetheless, business and cultural differences create very diverse markets among EU Member States. U.S. firms doing business in the region must comply with EU regulations, directives, and standards, but at the same time there remain substantial differences in the extent to which each Member State has implemented these policy frameworks.

Industry experts interviewed in Germany and France stress that for small U.S. firms which want to do business in these countries, or western Europe generally, some form of local presence is essential. Options include using agents or distributors; partnering with a large, established IT or telecommunications firm, systems integrator, or consultant already active locally; partnering with a western European SME with complementary skills or products; or setting up a local office. Regardless of market entry strategy, a variety of organizations, both public and private, can help U.S. IT and telecommunications SMEs enter or expand in western Europe.

CHAPTER 1: INTRODUCTION

When advancing into foreign markets, many U.S. information technology (IT)[1] and telecommunications companies often choose to target western Europe first,[2] for many good reasons. This region of 376 million people is among the most industrialized in the world, with a gross domestic product (GDP) second only to the United States. As the largest regional market for IT and telecommunications outside of North America, western Europe offers numerous business opportunities for U.S.-based small and medium-sized enterprises (SMEs),[3] whose leading-edge IT and telecommunications products and services are highly regarded and sought after there.

Targeting western Europe has many advantages, including cultural, economic, and trade-related factors

Compared to other regions of the world, western European cultures and business practices tend to be the most similar to those in the United States. Two countries in western Europe, the United Kingdom (U.K.) and Ireland, share much of our cultural heritage, including English as their primary language. Many people in the other western European countries, particularly in the business world, speak English as well. The U.S. legal system is very similar to that in the United Kingdom in that both are common law systems. European economic policy has developed a free-market orientation similar to that of the United States.

Western Europe's economic condition is relatively healthy. After several years of rapid economic growth in the region, growth decelerated in 2001 on the heels of the U.S. recession. However, the economic downturn in western Europe has not been as severe as in the United States, partly because the economies there had not been as overheated as the U.S. economy in the first place. Economists' predictions for western Europe are guardedly optimistic, with economic growth expected to gain momentum in late 2002 and accelerate in 2003.

Access to various western European markets has been facilitated by increasing economic integration. Over the past decade, through a number of initiatives, the European Union (EU) has made significant strides in integrating its 15 economies and fulfilling its goal of creating a single market. It has eliminated nearly all barriers to intra-EU trade, and harmonized countries' rules related to IT and telecommunications products and services such as standards, testing, approvals, anti-trust, frequency allocation and procurement by telecommunications operators. Goods shipped between EU Member States are duty-free, and goods certified for sale in one Member State meet the requirements of all others. Citizens with

[1] In this report, the terms "information technologies" and "IT" will refer to computer hardware and software, including Internet and electronic commerce applications.

[2] For the purposes of data and other consistency throughout this report, the term "western Europe" is defined as synonymous with the European Union (EU). The 15 EU countries are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

[3] In the United States, SMEs are defined as those firms having 500 or fewer employees.

passport from any EU country are allowed to work and live in any other EU country.

The recent replacement of the national currencies of 12 of the 15 EU Member States with a single monetary system, the euro, has hastened economic integration and is expected to make cross-border transactions much easier.[4] It will be a boon to e-commerce, particularly B2C, since online merchants can now access 300 million Europeans who conduct purchases in the same currency. Demographic and social trends are complementing the EU's integration efforts, making the EU market more homogeneous than it used to be. For example, younger Europeans are more widely traveled, technology-savvy (including Internet), and uniform in their overall buying habits than their elders.

The EU is party to trade and other international agreements that ease market entry for U.S. IT and telecommunications firms. In most cases, U.S. firms can obtain the same access to the EU market as EU firms, based on the "national treatment" obligations of the EU under World Trade Organization (WTO) rules. The EU is a signatory to the WTO Agreement on Basic Telecommunications Services, which aims to allow foreign telecommunications service providers to compete freely and fairly in signatories' markets. The EU has eliminated its external tariffs on most IT and telecommunications imports through the Information Technology Agreement (ITA). The U.S.-EU mutual recognition agreement (MRA) allows products or processes in certain regulated sectors to be tested and approved in the United States to EU standards, and vice versa. This has reduced the cost of, and the time required for, testing and approval procedures for U.S. and EU firms selling in each other's markets. Three of the MRA's six sectoral annexes apply to telecommunications and IT products, focusing on regulatory requirements for equipment attached to telecommunications networks, electromagnetic compatibility (EMC), and electrical safety.

The U.S. Department of Commerce and the European Commission have negotiated the "Safe Harbor" arrangement, under which U.S. organizations can adhere voluntarily to a set of data protection principles recognized by the Commission as providing adequate protection and thereby satisfying the requirements of the EU's Data Protection Directive regarding data transfers out of the EU. The EU and its Member States support strong protection for and enforcement of intellectual property rights. The Member States are members of all the relevant World Intellectual Property Organization (WIPO) conventions, and the EU has ratified and implemented the WTO Agreement on Trade-

[4]The 12 EU countries participating in the common currency (often referred to as the euro-zone) are Austria, Belgium, France, Finland, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain. Denmark, Sweden, and the U.K. have not adopted the euro. The euro conversion has happened in stages. The process began on January 1, 1999, when euro legislation came into force, many European financial markets switched to the euro, the euro-zone adopted a single monetary policy, and new government debt was issued in euros. January 1999 until December 2001 was a transition period, during which participating countries adapted their economies to prepare for the new currency. On January 1, 2002, the final stage occurred; euro notes and coins went into circulation, replacing the national currencies of the 12 countries.

Related Aspects of Intellectual Property Rights (TRIPs).[5]

Governments at all levels in western Europe are promoting greater use of information, Internet, and e-commerce technologies by European businesses and consumers. This is intended to make the EU and its individual Member States more globally competitive and productive. At a pan-European level, the EU has worked to create a legal and policy framework to harmonize telecommunications, Internet, and e-commerce regulations throughout the EU to remove barriers to trade between Member States. At the national level, governments in all countries have been pro-active in their view that adoption of the Internet and e-commerce is important for economic growth. They are developing or implementing programs to help firms, schools, government agencies, and other organizations increase their IT investments accordingly.

As well as factors related to technology adoption

For the most part, western Europe's spending and investment patterns for IT and telecommunications mirror those in the United States. Use of the Internet and e-commerce is becoming a daily part of life for western European consumers and businesses. European organizations increasingly are investing in many of the leading-edge networking, Internet, and e-commerce hardware and software technologies and services used by their U.S. counterparts, including intranets and extranets, data management services, network management applications, enterprise software, and security technologies. Smaller European firms, though not as advanced in IT and telecommunications usage as their larger counterparts, are eager to learn about the benefits that the Internet and e-commerce can bring them and to purchase the technologies and services necessary for an online presence.

Although western Europe is one of the first regions to adopt leading-edge information technologies, it still lags six months to at least a year (depending on the country) behind technology adoption trends in the United States. Paradoxically, this lag can provide additional opportunities for U.S. IT suppliers, because by the time certain European buyers are ready to invest in some technologies, U.S. suppliers have had time to bring them to market and test them out in the most advanced market in the world – the United States. U.S. firms then can still be first-to-market with their technologies in western Europe.

Western Europe's competitive position in the telecommunications sector is more mixed. It is generally considered to be a world leader in mobile communications, but it lags behind the United States in broadband and wireline data communications. Despite Europe's lead in mobile communications, there are many opportunities for U.S. firms in Europe's mobile markets. The extraordinary costs charged for third generation (3G) wireless licenses in many EU Member States create opportunities for U.S. vendors of less advanced-- and less expensive-- technologies for mobile data communications in those countries. In several of those countries that charged less for 3G licenses, such as France, 3G rollout is widely considered to have more

[5]For more information on any of these agreements, see the Appendix.

near-term potential, creating more immediate opportunities for technologies that enable 3G communications.

Meanwhile, the determination by the EU to provide "faster and cheaper" broadband access throughout the region is creating opportunities for various technology platforms in which western Europe lags behind the United States and other countries. Data communications for business users is another area where the longstanding U.S. lead over western Europe offers major opportunities for U.S. suppliers of technologies that enable high-speed data services and network management.

Yet challenges still exist

Despite all of these positive aspects, western European markets can be challenging for U.S. firms. In spite of the milestones achieved toward integration, western Europe is incredibly diverse and far from a homogeneous market. There are differences among countries in business and cultural practices, languages, and levels of IT and telecommunications infrastructure development.

Business and cultural differences create very diverse markets among EU Member States. Generally speaking, for example, France, Spain, Italy, and Portugal pride themselves on their Latin roots and the Latin characteristics of a slower-paced lifestyle and emphasis on personal relationships (including in the business world), while the northern European countries are more concerned with productivity and planning.

Although many western Europeans, particularly businesspeople, speak some English, a greater number do not. Even those Europeans who do know English usually prefer to work, surf the Internet, conduct e-commerce, and purchase products and services presented in their native languages. The United Kingdom and Ireland use slightly different versions of the English language from each other and the United States. Each country needs products and services tailored to its culture and language.[6]

Levels of IT and telecommunications usage vary greatly throughout the region. Countries' PC, mobile phone, and Internet penetration rates vary, as do the degree and types of broadband Internet penetration. Some countries' telecommunications markets are fully liberalized, while other countries still have not unbundled their incumbents' local loops. Licenses for 3G wireless communications spectrum have been awarded in most EU member countries but not all, and varying approaches by country to 3G licensing calls into question the homogeneity of the EU approach to 3G.

Many technology trends differ between the United States and western Europe, meaning that U.S. IT and telecommunications suppliers who want to do business there may need to tailor their offerings accordingly. U.S. digital mobile telephone standards, such as code division multiple access (CDMA) and time division multiple access (TDMA), are rarely used in western Europe. Instead, the global system for mobile communications (GSM)

[6]In fact, the European Commission is the only international organization to translate all of its documents into the official languages of all of its member countries, some nine languages.

standard is used throughout the region. A lack of widespread credit card use in western Europe has meant that e-commerce payment solutions commonly used in the United States are not widely employed in Europe. Instead, Europeans are expected to demand payment solutions based on smart cards, which are more commonly used there.

Western Europe's IT and telecommunications markets are relatively competitive, and becoming more so. Whereas just two or three years ago, few local European IT firms produced leading-edge Internet and e-commerce technologies, a growing number of local suppliers, particularly from the United Kingdom, Germany, and France, are active in the western European market. In addition, the number of foreign IT and telecommunications firms from the United States and elsewhere attempting to do business in western Europe has jumped. In fact, according to businesspeople interviewed recently in Germany and France, local IT and telecommunications distributors, integrators, and other potential partners are inundated with offers for new products and partners from firms in neighboring countries, from the United States, and elsewhere. Rising competition has made it imperative that U.S. technology suppliers be persistent in getting their products or services before European purchasers.[7]

Former national monopoly telecommunications operators are still the dominant providers of voice and Internet services in most western European countries, especially in local telecommunications services. In many countries, the widespread practice of metered pricing for local calls discourages dial-up Internet use. In addition, the lack of competition in much of the EU has also kept broadband Internet deployment very low, as monopoly providers have succeeded in stalling competitors' access to their local loops to offer digital subscriber line (DSL). Formerly rosy predictions of widespread broadband Internet access as well as 3G mobile communications throughout western Europe have become tempered as roll-out is taking longer than expected.

Despite recent integration of the EU market, there remain substantial differences in the extent to which each Member State has implemented various EU policies. For example, ten of the 15 EU Member States missed the EU's January 17, 2002, deadline for transposing into their national laws the EU's E-Commerce Directive, leaving the legal framework on e-commerce throughout much of the EU in a state of uncertainty. Only about half of the Member States have fully implemented the EU's Data Protection Directive. Although most recent policy changes in the EU are pro-competitive, benefitting U.S. firms that seek to penetrate the market, some EU policies can potentially make the European market difficult for U.S. firms. The EU recently approved imposing a value-added tax (VAT) on purchases of digitally-delivered products by EU consumers. Further information on the European regulatory environment is provided in Chapters 2, 3, and 4.

[7]German and French IT market specialists, interviews by USDOC staff, Berlin and Paris, Nov. 9 and 15, 2001.

CHAPTER 2: OVERVIEW OF THE MARKET IN WESTERN EUROPE

WESTERN EUROPE[1] 2001		
Population and GDP	Total Population	376 million*
	GDP Per Capita	$19,838
IT Market	IT Services	$118.5 billion[2]
	IT Hardware and Software	$147.7 billion[2]
Personal Computers	Total	93.8 million*
	Penetration Rate (Per 100 Inhabitants)	25%*
Telecommunications Market	Telecommunications Services	$197.9 billion
	Telecommunications Equipment	$68 billion[2]
Wireline Subscribers	Total	207 million*
	Penetration Rate (Per 100 Inhabitants)	55%*
Wireless Subscribers	Total	221 million
	Penetration Rate (Per 100 Inhabitants)	72%
Telecommunications Investment	Per Capita	$722
Cable TV	Total Subscribers	46 million*
	Penetration Rate (Per 100 Inhabitants)	12%*
Internet	Total Users	148 million
	Penetration Rate (Per 100 Inhabitants)	39%
E-Commerce	Total B2B and B2C	$154 billion

Sources: IDC, U.S. Department of Commerce, EITO 2002, Reed Electronics Research, Kagan World Media
*2000 Figure
1 Unless otherwise noted, western Europe is defined as synonymous with the European Union (EU). The EU's 15 Member States: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.
2 Luxembourg is excluded from this figure.

INTRODUCTION

Western Europe and the European Union

Definitions of "western Europe" vary. This report defines the region as synonymous with the fifteen European Union (EU) countries for two reasons. First, this allows for data consistency when talking about "western Europe," since much market data published on the region are aggregate data from the

fifteen EU countries. More importantly, the EU itself, as an institution and supranational structure (as described below), influences the business and regulatory climates in its fifteen member countries (including Germany and France) in numerous and far-reaching ways– about which U.S. firms doing business in any country in the region should be aware.

The EU, a political and economic community, was first established as the European Coal and Steel Community in 1951, when France officially proposed to create "the first concrete foundation of a European federation." Six countries (Belgium, Germany, France, Italy, Luxembourg, and the Netherlands) joined at that time. In 1958, it became the European Economic Community (known as the Common Market). Today, after four waves of accessions (1973: Denmark, Ireland, and the United Kingdom; 1981: Greece; 1986: Spain and Portugal; 1995: Austria, Finland, and Sweden), the EU has 15 countries, commonly called "Member States" (Text Box 2-1).[8]

Text Box 2-1

15 EUROPEAN UNION MEMBER STATES	
Austria	**Italy**
Belgium	**Luxembourg**
Denmark	**Netherlands**
Finland	**Portugal**
France	**Spain**
Germany	**Sweden**
Greece	**United Kingdom**
Ireland	

Under the EU system, although EU Member States retain autonomy over most of their internal affairs, they delegate responsibility to common EU institutions representing the interests of the Union as a whole on questions of joint interest. The EU (on behalf of the European Commission, Parliament, and Council of Ministers) issues certain binding legislation for all Member States in areas where it is best placed to take effective action, such as in policies to facilitate intra-EU trade. In addition, Member States' laws and regulations related to economic development must contain the essential requirements of EU legislation. The European Commission, mentioned often in this report, is the EU's executive branch, initiating most EU legislation.[9]

This supranational system is unique in the world. It makes for a large, increasingly integrated western European market with relatively harmonized economic policies. Further, many of the IT, telecommunications, Internet, and e-commerce market trends in western Europe described in this chapter stem from, or have been influenced by, policies and decisions made at the EU level. Any understanding of the current (and, in many cases, future) trends in individual countries' IT or telecommunications markets can in many cases only be complete with an understanding of EU efforts or actions behind them. Examples include broadband deployment, 3G licensing, laws regarding e-commerce and electronic signatures, and even some trends in IT spending, all detailed in this chapter. Thus, in addition to describing the

[8]The EU also is preparing for the accession of 13 eastern and southern European countries.

[9]For more information on the structure of the EU, see its official site at http://europa.eu/int or the U.S. Mission to the EU's site, http://www.useu.be/AbouttheEU.htm.

overall western European market for telecommunications and IT, this chapter explains the link between these market trends and the EU where appropriate.

The United States and the EU enjoy a mature economic relationship characterized by massive two-way trade and by even more extensive two-way investment ($1.1 trillion in 1999, according to the U.S. Mission to the EU in Brussels). The EU and the United States are of similar size and heft. The EU's total population is 37 percent greater than, and its GDP is 15 percent less than, those of the United States.[10]

Recent economic slowdown

Western Europe's total GDP growth in the last several years has lagged that of the United States. Nonetheless, until the spring of 2001, western Europe had been enjoying a period of relatively solid economic growth. Its GDP growth rate was 3.3 percent in 2000, due to a strong pick-up in the world economy and falling interest rates, combined with higher productivity and corporate profitability.

Economic growth in western Europe decelerated sharply in 2001 to 1.7 percent, according to the European Commission's spring 2002 economic forecast.[11] This slowdown has been due largely to the U.S. economic downturn and recession. Because the United States is the EU's leading export market, falling U.S. consumption has hurt many European producers, and their depressed sales in turn have rippled through the European economy. Other factors contributing to the slowdown have included the recent rise in oil prices, an unexpected rise in food prices, and falling net disposable incomes. Capital investments have fallen due to weak demand and a squeeze in profit margins.

Western Europe also experienced its own bursting of the telecommunications and IT bubble in 2000 and 2001 (though the bubble was not as large there as in the United States). Nonetheless, after a period of acute shortage of skilled IT and telecommunications workers in Europe during the late 1990s and 2000, this downturn has resulted in job cuts there. Telecommunications operators, telecommunications equipment producers, software producers, and component manufacturers shed approximately 155,000 jobs in the EU between July 2001 and mid-January 2002.[12]

In addition, the terrorist attacks on the United States of September 11, 2001, reportedly exacerbated Europe's economic slowdown by creating a feeling of insecurity and uncertainty in the region.

[10]For more information on the EU's commercial environment, see the most recent EU Country Commercial Guide (CCG) published by the U.S. Mission to the EU, located in Brussels, Belgium. CCGs, prepared annually at U.S. embassies through the combined efforts of U.S. government agencies represented, present a comprehensive look at the commercial environment in a country (in this case, the EU), using economic, political and market analysis. The 2002 EU CCG is available at http://www.usatrade.gov/Website/CCG.nsf/ShowCCG?OpenForm&Country=EU.

[11] "Economic Forecasts, Spring 2002," *European Economy: No. 2, 2002*, European Commission, Directorate General for Economic and Financial Affairs Publications, Office for Official Publications of the EC, Luxembourg, Spring 2002.

[12]Figures were collected from publicly available sources by Novaxess B.V., a Dutch telecommunications operator.

Western Europe's economic slowdown has not been as sharp as that in the United States, partly because European economies had not become as overheated as the U.S. economy during the Internet frenzy.[13] Further, economic recovery is expected to occur relatively soon– even more quickly than in the United States. After slowing to a 1.5 percent growth rate in 2002, the region's economy is expected to rebound in 2003, growing 2.9 percent, according to spring 2002 European Commission forecasts.[14]

Technology adoption is growing rapidly

Western Europe has the world's second largest regional market for IT and telecommunications equipment and services, after that of North America, and it is growing rapidly. Western Europe's total market for IT and telecommunications products and services in 2001 was $532.1 billion, according to IDC (IT figures), the European Information Technology Observatory (telecommunications services), and Reed Electronics Research (telecommunications equipment).[15]

Much has changed in recent years to spur increasing technology adoption in the region. Telecommunications services and related infrastructure markets have been liberalized, bringing lower prices, improved service, and greater Internet penetration. Countries that had considered the Internet and e-commerce to be uniquely U.S. phenomena have grasped their importance to efficiency and productivity, and are adopting them rapidly.

In fact, use of the Internet and e-commerce has become part of daily life in western Europe. Households are buying computers, connecting to the Internet, and engaging in e-commerce. Organizations are investing in many of the leading-edge networking, Internet, and e-commerce hardware and software technologies used by their U.S. counterparts, including intranets and extranets, data and network management applications and services, enterprise software, broadband, and IT security. To be competitive in the world economy, the European Commission and Member State governments are encouraging and helping their citizens and industries to invest in IT and telecommunications in general, and the Internet and e-commerce in particular.

Technology use varies in the region

Although many of these trends hold true for all of western Europe, substantial differences exist between individual countries. The region is one of contrasts in patterns of IT and telecommunications spending and use.

Generally speaking, western Europe's more northern countries tend to be the region's most technology-savvy, due in part to their higher standards of living and per capita GDP. In terms of many key technology indicators, the leaders of the region are in

[13] Problems in the telecommunications sector are expected to affect those EU countries most dependent on this industry for their economic strength, namely Finland (home of Nokia) and Sweden (home of Ericsson). Source: "Autumn 2001: Economic Forecasts 2001-2003," *European Economy: Supplement A. Economic Trends, No. 10/11*, European Commission, Directorate General for Economic and Financial Affairs Publications, October/November 2001.

[14] "Economic Forecasts, Spring 2002."

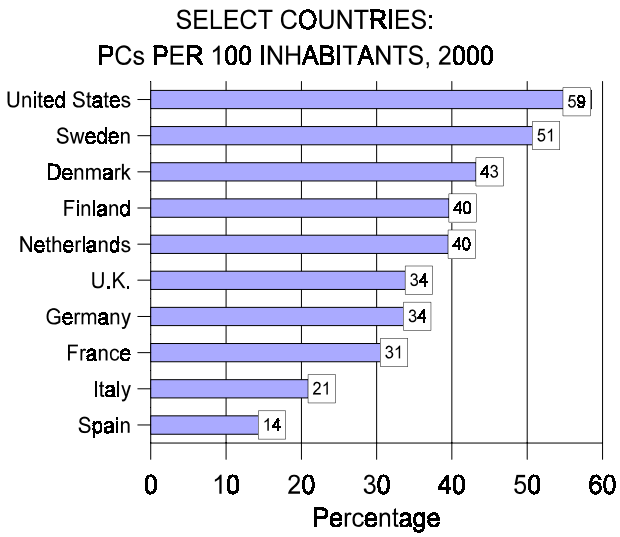
[15] *IDC Worldwide Black Book*, April 2002; *European Information Technology Observatory: 2002 Yearbook*, March 2002; and *Electronics Industry Yearbook 2002*, Reed Electronics Research.

Scandinavia. Sweden, Denmark, and Finland spend more than 0.4 percent of their GDP on IT and telecommunications, according to the European Information Technology Observatory's annual report, *EITO 2002*.[16] Wireline telephone, PC, Internet, and mobile phone penetration rates in Scandinavia are substantially higher than in the rest of western Europe (the one exception being Italy, where the mobile phone penetration rate is on a par with Scandinavia). In fact, the Scandinavian countries have higher Internet penetration rates than the United States and have been early adopters of some of the most innovative uses of the Internet. For example, Finnish consumers use mobile phones to beam orders to vending machines, with the transaction charged to their phone bills.

Countries in the heartland of western Europe (Germany, the United Kingdom, France, Belgium, the Netherlands, and Luxembourg) also have relatively high PC and Internet penetration rates, and their mobile phone usage has grown phenomenally in the past few years. *EITO 2002* reports that these countries spend 0.25-0.35 percent of their GDP on IT and telecommunications. The first three countries provide some of the greatest market opportunities, given their advances in telecommunications liberalization, relatively large markets, and their receptivity to technology. In fact, Germany, the United Kingdom, and France are western Europe's top three markets in general, as well as for leading-edge technologies. Their IT and telecommunications markets combined represent nearly two thirds of western Europe's total market. However, the last three countries (Belgium, the Netherlands, and Luxembourg) also have attractive markets. Combined, they have an IT and telecommunications market approximately half the size of that of France.

Countries in southern Europe, namely Italy, Spain, Portugal and Greece, tend to lag in IT and telecommunications adoption. These countries, along with Ireland, spend between 0.18-0.21 percent of their GDP on IT and telecommunications, according to *EITO 2002*. The PC penetration rates of Spain and Italy were less than half those of the Scandinavian countries in 2000 (Figure 2-1). Italy aside, mobile phone penetration rates in the south, though higher than in the United States, are lower than in the rest of western Europe. Even wireline telephone service is not as advanced here.

Figure 2-1



Source: ITU, April 2001

Nonetheless, markets in southern Europe have the fastest growth rates in the region. Mobile

[16] *European Information Technology Observatory 2002*, Frankfurt, March 2002.

Internet access is expected to have much potential here, where Internet access via PC and fixed telephone lines is not an option for many people. Italy and Spain are notably strong markets for wireless technologies, and many people believe they will leapfrog PC-based e-commerce and move directly to mobile commerce. Italy in particular is a rapid adopter of new technologies. It has been very quick to adopt wireless devices (it went from almost last place to among the top EU countries in terms of mobile phone usage in only two years) and other new technologies such as video-on-demand. The telecommunications markets of Portugal and Greece are expected to be stimulated by the liberalization of basic wireline telecommunications services in these countries at the beginning of 2002. IT and telecommunications spending in Greece is expected to get a further boost in the next few years, as the Greek government invests in the technologies necessary to automate and broadcast the 2004 Olympic games.

Many technology trends in Europe differ from those in the United States

Not only do western Europe's IT and telecommunications infrastructure and usage differ internally, but many trends differ from those in the United States. Western Europe is ahead of the United States in terms of mobile phone and mobile data communications penetration, but lags the United States in PC penetration. On a related note, the United States leads the world in the diffusion of the Internet via PCs, but Europe has a greater penetration of interactive platforms via digital TV (DTV).[17]

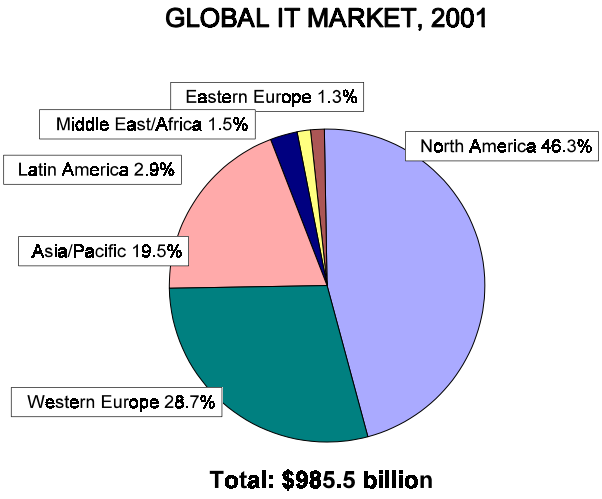
Many Europeans prefer smart cards to credit cards, which are not as widely used there as in the United States; smart cards have embedded computer chips allowing the draw-down of pre-loaded balances. Online banking is much more popular in western Europe than in the United States. The Linux operating system was adopted earlier, and is used more widely, in Europe than in the United States, reportedly because it is considered to be a very dependable operating system due to its non-proprietary (open) standard; further, many Europeans take pride in Linux's European origins (it was invented in Finland). More European than U.S. websites tend to be multilingual.

INFORMATION TECHNOLOGY

Western Europe has the second largest regional market for IT products and services, second only to North America, according to IDC's April 2002 Black Book (Figure 2-2).

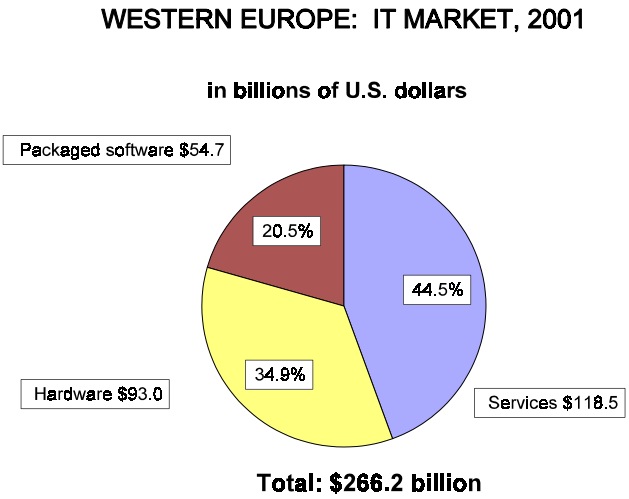
[17] Digital television (DTV) is the transmission of television signals using digital rather than conventional analog methods. Common transmission methods include satellite, cable, and terrestrial. DTV is received either through digital television sets or via set-top boxes, which convert a digital signal to analog so that an analog television can display digital programs.

Figure 2-2



Source: IDC, April 2002 Black Book

Figure 2-3



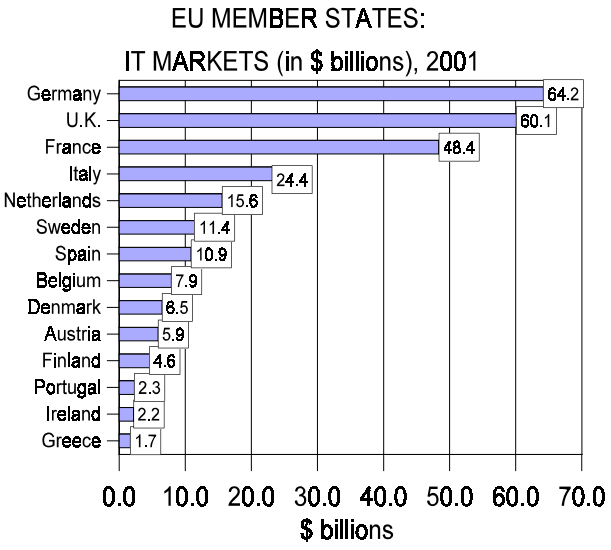
Source: IDC, April 2002 Black Book

Western Europe's IT market– including computer hardware, software, and IT services– was valued at $266.2 billion in 2001, representing more than one quarter of the global IT market, according to IDC's April 2002 Black Book.[18] IT services, valued at $118.5 billion, comprised nearly 45 percent of the region's total IT market. Computer hardware, including local-area- and wide-area-networking (LAN and WAN) equipment, accounted for 35 percent, and was valued at $93 billion. The software market comprised approximately 20 percent and was valued at $54.7 billion (Figure 2-3).

Germany, the United Kingdom, and France comprise the bulk of western Europe's IT market (Figure 2-4). However, despite the small size of the IT markets in the south, namely Italy, Spain, Portugal, and Greece (combined, they accounted for only 15 percent of western Europe's total 2001 IT market) some of the EU's fastest compound annual growth rates (CAGR) for IT spending are expected through 2006 in southern Europe. Notably, IDC's April 2002 Black Book predicts Italy's CAGR will be 12.1 percent, Spain's 10.7 percent, Greece's 10.6 percent, and Portugal's 10.3 percent from 2001-2006, all above the western Europe CAGR average of 9.8 percent.

[18]This figure represents the combined IT markets of all 15 EU Member States except Luxembourg. IDC's IT figures include computer hardware (including local-area-networking [LAN] and wide-area networking [WAN] equipment), packaged software, and IT services.

Figure 2-4



Source: IDC, April 2002 Black Book

The large size of western Europe's total IT market notwithstanding, western Europe lags the United States in IT investments, particularly in leading-edge technologies such as Internet and e-commerce solutions. IT spending per capita in western Europe averaged $710 in 2001, less than half of that in the United States ($1,617), according to IDC's April 2002 Black Book. This figure indicates plenty of room for expansion in western Europe's IT market.

Pent-up demand for IT

Several factors have hampered IT spending in the past decade in Europe, and as these disappear spending is expected to grow rapidly as firms and other organizations try to make up for lost time. One factor was the 1990s move toward EU economic integration. Some EU economies, particularly the smaller or less-developed ones, went through in-depth structural changes during the last decade as they integrated into the EU "Single Market."[19] In these countries, many larger firms had other, more pressing concerns than IT spending. These included forming and managing mergers and acquisitions necessary to reach the minimum size required to survive, much less compete, within the Single Market.

Another factor has been the adoption of the euro, a common currency, in 2002.[20] In the 12 EU countries adopting the euro, much IT spending from the late 1990s through 2001 was allocated to preparing IT systems, both internal and external, for financial transactions in the new currency. Even organizations in European countries not adopting the euro, such as the United Kingdom, had to invest in such technologies due to their strong financial ties to countries in the euro-zone. In addition to these two factors unique to the region, much IT spending in the late 1990s in Europe was allocated to upgrading computer systems in preparation for Y2K, as in the United States.

To varying degrees and in various western European countries, the above factors caused postponement of spending on many other IT

[19]In 1989, the EU (then called the European Economic Community) recognized that its integration efforts were not moving quickly enough. In response, it launched the Internal Market program, which aimed to accelerate the creation of a more integrated economic community by 1992. The Internal Market program consisted of 190 directives (for an explanation of directives, see Text Box 2-2) to remove barriers to trade between Member States. Most of these have been in effect since 1992, but the EU continues to work toward further integration of what it now calls its "Single Market."

[20]See footnote 4 in Chapter 1 for an explanation of the adoption of the euro.

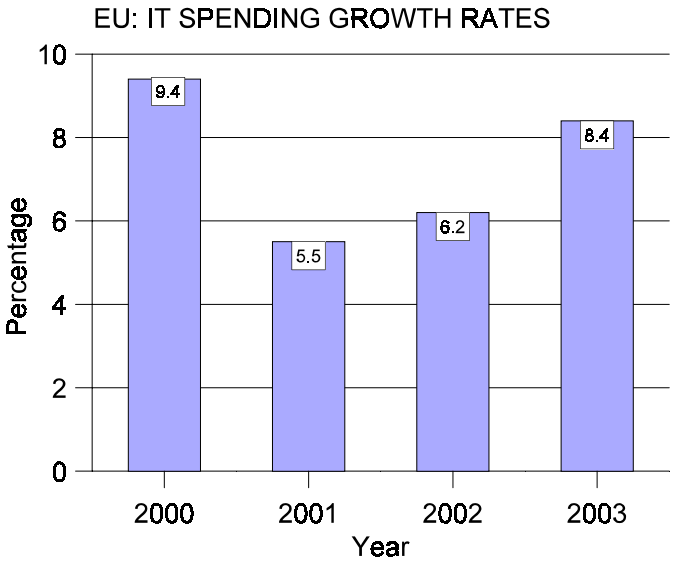
priorities, particularly in software and services (many European firms upgraded their computers and related systems during their Y2K remediation). As a result, many European firms and government agencies have a huge pent-up demand for information technologies they could not purchase for many years, and they are eager to spend in these neglected areas and modernize their technology systems.

The economic slowdown has affected IT spending

Western Europe's economic slowdown has affected its IT sector. IT budgets have tightened, as European businesses have become much more careful about their IT procurements, adopting a wait-and-see approach. U.S. and other IT suppliers of all sizes report that selling into the market has become much more challenging.[21] Although they have not been hit as hard as the telecommunications operators (described later in this chapter), in late 2001 large European IT services firms had share prices that were off as much as 60 percent from their peaks. These firms are under pressure to revamp their strategies. However, the slowdown in IT market growth in 2001 was not even across Europe, according to *EITO 2002*. Scandinavia and Germany were more strongly affected by the economic slowdown, showing moderate growth, whereas southern European countries' IT markets grew above the European average.

Despite the downturn, western Europe's demand for information, Internet, and e-commerce technologies has outpaced its GDP growth rates and is expected to rebound relatively quickly, particularly in key niches such as mobile data transmission solutions, and IT security. IDC's April 2002 Black Book forecasts the western European IT market will grow 6.2 percent in 2002 and 8.4 percent in 2003, up from a low of 5.5 percent in 2001 (it grew 9.4 percent in 2000), as it recovers from the economic slowdown (Figure 2-5).

Figure 2-5



Sources: IDC April 2002 Black Book, 2001 Black Book

Four key trends in IT spending

Positive forecasts notwithstanding, the economic slowdown has caused four key trends in spending, both generally and on IT, particularly among large European companies.[22] Although the slowing economy

[21]European industry representatives, interviews by USDOC staff, Germany and France, Nov. 7-16, 2001.

[22]The paragraphs in this section come mainly from USDOC staff interviews of a Germany industry representative, Hamburg, Germany, Nov. 12, 2001.

has been the main factor influencing current cuts in IT expenditures, some of the cutbacks can be attributed to an attempt to balance the larger-than-normal spending on Y2K remediation in the late 1990s.

First, large European firms are reprioritizing IT purchases. They are tying IT outlays more tightly to what is necessary to support core business competencies and focusing on IT projects that are based on measurable cost saving and service improvements. Firms are reviewing carefully their installed software applications and in many cases not renewing licenses for applications they find they do not use, and are not upgrading hardware and software as rapidly as in the past. They are assessing current IT projects to concentrate on those projected to provide the highest returns. At the same time, firms are forgoing IT projects they may have undertaken as recently as a year ago that are less related to their bottom lines. For example, spending on areas such as content management or certain e-commerce solutions is going on the back burner. They also are consolidating their IT, including data storage.

Second, firms are taking fewer chances with IT projects and suppliers. Many firms are willing to engage only in measurable, low-risk projects, and are putting more emphasis on procuring IT products and services from longstanding or trustworthy suppliers.

Third, firms are devoting more spending to developing e-business strategies, which they now realize are critical to leverage new e-business technologies. Industry representatives state that many firms are willing to spend money on the technologies necessary to support these e-business strategies, but, due to budgetary constraints, the emphasis is on maximizing such spending by buying proven technologies likely to remain in use for a long time.

Fourth, firms are outsourcing business processes that do not fall under their core competencies. As these processes go, technologies that support them go as well.

General trends in IT spending

Generally speaking, investments in IT in western Europe are similar to patterns in the United States. Like in the United States, many European organizations are purchasing technologies to increase their competitiveness and efficiency. As would be expected, smaller European firms are much less advanced than their larger brethren in technology purchases.

Software and related services are driving spending

Software and related services investments are driving western Europe's IT market. In an April 2002 telebriefing, IDC reported that some particular technologies postponed in recent years were customer relationship management (CRM), analytics, and collaborative technologies.[23] Now, larger European firms are spending on more advanced areas such as these, as well as supply chain management (SCM), and e-business. Notably, telecommunications operators are investing rapidly in CRM to attract and retain customers. European firms are investing in systems software to support and manage higher data traffic volumes in

[23]"IT Investment Prospects for European Vertical Markets in 2002," IDC Telebriefing, April 4, 2002.

their networks. Many European firms are spending on integrating their enterprise applications to streamline their front- and back-office operations and cut costs. *EITO 2002* predicts that key areas of focus in 2002 will include content management, marketing applications, and multi-lingual and cross-lingual applications.

Information systems security

Information systems security is a rapidly rising priority of IT investment and for many firms has become a mandatory budget item. In fact, IDC reported in June 2002 that the total European market for security products will increase from $1.8 billion in 2000 to $6.2 billion in 2005.

A major driver of IT security spending is European organizations' increasing reliance on the Internet and external networks. Further, growing use of data-intensive solutions and new business models including e-business and SCM have made the use, preservation, and protection of data critical to many firms' bottom lines. Rising use of mobile applications and mobile transactions is propelling demand for technologies to secure mobile devices. In addition, there has been a surge in interest in new efforts to secure, and, in particular, back up data, among many businesses who watched how New York City firms whose offices had been destroyed on September 11, 2001, returned to relatively normal operations a few days later thanks to remote network management products and redundant systems.[24] Larger firms also are increasingly worried about security breaches. Smaller European firms, hit by an increasing number of viruses in recent years, are increasing their investments in firewalls and similar technologies.[25]

Certain European industries lead in IT security spending, namely those already relatively heavy users of IT or that rely to a large degree on automated external relationships. In its April 2002 telebriefing, IDC predicted that the banking and financial services, government, retail/wholesale, and manufacturing industries would account for approximately 75 percent of western Europe's IT security spending in 2002.

IT services

The growing cost and complexity of networks is driving a growth in IT consulting and outsourcing among European firms, particularly the larger ones. Systems integration is one of the top priorities for European corporate IT departments, according to the market research firm Gartner. Internet hosting is a high-growth area, and hosted data storage is expected to be a large market in the future.

Slower growth in hardware investments

Of all IT market segments, computer hardware has been the most negatively impacted by Europe's economic slowdown. Many European organizations have put on hold non-essential hardware renewals and

[24]However, businesses in some European countries that have long experienced domestic terrorism, for example the United Kingdom and its experience with the Irish Republican Army (IRA), reportedly have not been as affected in this way. Source: U.K. market specialist, e-mail correspondence to USDOC staff, spring 2001.

[25]European industry representatives, interviews by USDOC staff, Nov. 7-16, 2001.

large projects, according to *EITO 2002*, which predicts the hardware segment will have negative growth in 2002. In particular, PC sales have been hit by weak consumer demand and falling corporate investments, which more than offset rising demand for PCs among European small and medium-sized enterprises (SMEs).

Some hardware segments are faring better, however. Investments in higher-end computers are more positive. Although server sales had been depressed, particularly as many European organizations delayed replacing servers they already owned, many users began in 2001 to initiate purchasing servers once more, according to *EITO 2002*. Data storage needs are growing as data usage rises exponentially and web sites multiply. However, IDC predicts a decline in storage spending in western Europe in 2002. Spending is expected to rise in 2003, according to IDC's April 2002 Black Book.

Demand for LAN equipment will grow by approximately 4 percent in western Europe in 2002, according to IDC. *EITO 2002* reports that European organizations are purchasing LAN equipment to achieve greater bandwidth, to maximize their use of e-commerce, and due to a desire for remote network connectivity. Many organizations are buying new equipment to standardize their LAN infrastructure to the Internet protocol (IP), moving away from older communications protocols such as asynchronous transfer mode (ATM) and frame relay. This trend is expected to continue as firms seek ways to cut costs.[26]

[26]European industry representatives, interviews by USDOC staff, Germany and France, Nov. 7-16, 2001.

Wireless devices

There is growing investment in mobile devices, including wireless LANs (WLANs). Firms are investing in personal digital assistants (PDAs) and other handheld devices to improve their workers' productivity and efficiency. According to IDC, 2.8 million smart handhelds[27] were shipped in western Europe in 2001, up from 2.7 million in 2000. Current spending on mobile devices is most concentrated in Europe's manufacturing, telecommunications, and utilities industries. Mobile computing is expected to be a key long-term opportunity in Europe, driven by the current low PC penetration rate and wireless developments.

SMEs are increasing IT spending

SMEs[28] make up the vast majority of European firms. In fact, western Europe has more than 19 million SMEs, and SMEs make up more than 99 percent of the total number

[27]IDC includes two categories of products under "smart handhelds": 1) Pen- or keypad-centric handheld devices designed to access and manage data; these items may have wireless capabilities enabling Internet access, text communication, and voice communication. 2) Pen- or keypad-based, more rugged "vertical application devices" designed to fit the specific needs of vertical industries, such as protection against the elements or accidental damage. These devices are based on mobile operating systems and processors. They may include additional integrated options such as barcode scanners or wireless connectivity. Information access, management, creation, and collection are their core functionalities.

[28]For comparison purposes, it is important to note that the definition of SME in western Europe differs from the typical usage of this term in the United States. Generally speaking, SMEs in the EU have 250 or fewer employees, compared to 500 or fewer in the United States.

of businesses in most EU Member States, according to the European Commission.[29]

Although smaller European firms lag in IT usage, they slowly are becoming more sophisticated in this regard. In its April 2002 telebriefing, IDC reported that within many smaller European firms, IT decision-making is shifting from owners to staffs, and IT adoption is becoming more strategic (related to business processes) as well. SMEs in selected industries are using the Internet to integrate their procurement chains and are catching up in the areas of IT security. SMEs are investing in LANs to develop internal connectivity. Some smaller firms are beginning to invest in basic CRM software and integrated logistics systems. However, SCM and other more advanced integrated technologies are not used very widely among European SMEs.

SMEs' IT usage is expected to get a boost from governments across Europe which are eager to help these smaller firms catch up in technology adoption. In fact, under the European Commission's 2001 "Helping SMEs Go Digital" initiative,[30] part of *eEurope* (detailed at the end of this chapter), the EU and Member State governments are providing SMEs with €1.4 billion ($1.2 billion)[31] in financial support for investments in hardware, software, training, and introduction of Internet and e-business practices. Further, the European Commission aims to promote better use of Structural Funding (also detailed at the end of this chapter) to promote the use of e-business by European SMEs.

IT spending in leading vertical markets

In its April 2002 telebriefing, IDC reported that the largest and fastest growing vertical markets for IT spending in western Europe are banking and financial services, governments, business services, and telecommunications. These sectors' 2001-2002 IT spending growth rates all are at or above 8 percent.

Banking and financial services lead IT investments

According to IDC, banking and financial services is the biggest and fastest growing vertical market consumer of IT in western Europe. Banks and financial institutions are being driven to invest in IT in large part to streamline their internal processes and lower their costs. Many of these institutions face increased credit risks, due in part to lending they provided to telecommunications operators to invest in 3G licenses, as well as lower margins on some of their services. Further, as this sector becomes increasingly competitive, institutions need to differentiate themselves from their competitors. To this end, banks are integrating their back-end functions with CRM solutions to personalize users' experiences, as well as investing in front office and marketing tools, according to IDC. Institutions also need technologies to enhance their corporate and risk management systems per new EU requirements under the Basle II directive (for an explanation of directives, see Text Box 2-2).

[29]"*eEurope* Go Digital," Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, Brussels, March 13, 2001.

[30]Ibid. See http://europa.eu.int/ISPO/ecommerce/godigital/Welcome.html.

[31]Throughout this report, the exchange rate used for the euro is €0.88 = $1.

Text Box 2-2

WHAT ARE EU DIRECTIVES?

The most common type of binding EU legislation is the directive. Directives define results to be achieved in a particular area, while allowing national authorities to decide the form and means for achieving the desired aim. Member States must modify current or introduce new national laws, regulations, or administrative provisions to implement a directive, normally within 15 months to three years after its final adoption by the EU. The European Commission may take legal action against Member States that fail to implement the essential requirements of a directive by the date of implementation that is required in the directive.

WHY IS THIS IMPORTANT?
EU directives determine most of the key regulatory policies for IT, telecommunications, Internet, and e-commerce in EU Member States.

European banks continue to invest rapidly in technologies to optimize and reduce the costs of online banking, which is extremely popular in Europe. In fact, 27 percent of European online consumers use online banking services regularly, compared to 14 percent of online consumers in the United States, according to a 2001 AOL Europe/Roper Starch Cyberstudy.[32] IDC reported in its April 2001 telebriefing that many banks are investing in solutions to convert branches to self-service centers. IT security and business continuity are major IT spending areas in this vertical market, where ensuring private and secure financial transactions as well as continuity of business functions in the event of an emergency are critical.

European governments are getting themselves online

Governments in western Europe have been very conservative in their IT usage and innovation in general. Levels of government IT usage vary by country. Finland reportedly leads in the sophistication of its online government services, while governments in France, Germany, Italy, the Netherlands, and the United Kingdom lag behind many other EU countries in this area, according to *EITO 2002*. Regardless of degree of sophistication, fully transactional government-to-business (G2B) services in EU Member States are rare, according to *EITO 2002*, which reported that the only online government service available in a majority of EU countries is online VAT payment.[33]

European governments in all countries are eager to expand their range of online service offerings, and G2B services are expected to expand dramatically in the region. Although many governments had already begun to invest in online technologies on their own, they also are being pushed by the European Commission to do so more aggressively. Under its *eEurope* initiative (discussed at the end of the chapter), the European Commission set a deadline of 2005 for governments in the EU to automate many of

[32]"First AOL Europe/Roper Starch Cyberstudy Shows Explosive Growth in European Internet and E-Commerce," AOL Press Release, May 10, 2001.

[33]Nine countries (Denmark, Finland, France, Greece, Ireland, Norway, Portugal, Spain, and the United Kingdom) have a complete online service for VAT declaration. The European Commission recently published a report benchmarking European governments' online service offerings. See http://www.europa.eu.int/information_society/eeurope/action_plan/egov/index_en.htm.

their processes and make many of their services, for both businesses and consumers, available over the Internet.

As a result of these internal and external pressures, government agencies in the region at all levels will be spending considerable resources over the coming years to upgrade their IT infrastructures, secure their networks, and improve their usage of the Internet to interact with their businesses and citizens. IDC estimates that in 2000 the European public sector spent approximately six percent of the region's total IT services spending on e-government, equivalent to $1.3 billion. E-government spending is expected to grow to 12 percent of the region's total IT services spending in 2005, or $4 billion, representing a 26 percent CAGR over the five-year period.[34]

IDC predicts that particular technologies in demand by governments will be ERP and back-office automation, e-procurement, Internet-based self-service technologies, web portals, and networking technologies to connect traditionally disparate agencies. IT security will also be a key investment due to the nature of government information, but also because governments are under heavy pressure to provide examples of online security to the private sector.[35] As in the United States, the rollout of e-government in western Europe will in turn drive increased B2B and B2C e-commerce in the region, as people become more comfortable with and accustomed to online transactions with government bodies.

Business services firms need to be competitive

As mentioned above, during the economic downturn, many larger European firms have been outsourcing more and more of their non-critical operations in an effort to cut costs and focus on their core competencies. IDC reported in its April 2002 telebriefing that European services firms which compete to perform these outsourced tasks must increase their own use of IT to cut costs and increase their efficiency.

Telecommunications operators need various information technologies

As detailed in the telecommunications section later in this chapter, European telecommunications operators currently are struggling under growing competition, falling profit margins from basic voice services, and the slowdown in western Europe's telecommunications markets. As a result, operators are eager to invest in IT solutions that ultimately can cut their costs and help them acquire and retain customers.

In the highly competitive telecommunications environment, personalization is of paramount importance. According to IDC's April 2002 telebriefing, many European operators already have invested in CRM and now look to leverage the data in these solutions to service and retain their customers. Investments are high in analytical and business intelligence tools such as data mining and customer service systems that can be used to up-sell and cross-sell services. Solutions to support personalized services such as online access to telephone bills and account details are in demand, as are those related to marketing,

[34]IDC press release, Nov. 29, 2001.
[35]Ibid.

project management and implementation, and advanced billing (particularly for mobile data services). Operators are investing in IT security to protect their own systems and provide secure networks to their customers.

IT suppliers to the region

European firms are not especially competitive in the IT industry, with notable exceptions such as Germany's Siemens (computer hardware) and SAP (computer software), and French software services firms Cap Gemini and others.[36] Generally speaking western Europe's IT markets are dominated by U.S. suppliers. U.S. exports of IT products to the 15 EU countries remained relatively steady in 1999 and 2000, averaging $7.2 billion. However, exports fell 12 percent in 2001, to $6.3 billion, due to the slowdown in the European economy.[37]

The dominant position of many U.S. IT firms notwithstanding, local software and Internet industries, comprised mainly of smaller firms, have become increasingly competitive in many western European countries over the past few years. Local software companies tend to focus on niche or specialized areas, such as those requiring country-specific expertise (i.e. tax software).

Although many Internet and e-commerce start-ups, including "dot.com"s, have gone out of business as Europe's Internet bubble burst and as European economies have slowed, numerous small technology companies have remained successful, and new ones are emerging daily. In particular, Internet firms from Germany, the United Kingdom, and France are considered to be very competitive in both their home and each other's markets.

Nonetheless, industry representatives believe that western European software firms, particularly those offering Internet and e-commerce solutions and services, still are at a disadvantage vis-à-vis their U.S. counterparts. U.S. firms are considered to have an edge due to their experience in the larger, more mature, and more homogeneous U.S. market, in which they can more easily and quickly market new

[36]Several of the major western European IT hardware suppliers are either owned now by Japanese firms or act as significant original equipment manufacturers (OEMs) for them. Examples of OEMs are Siemens and Bull of France. ICL of the United Kingdom is Japanese-owned.

[37]Source: U.S. Department of Commerce. Trade data include computer hardware and LAN equipment. They do not include computer software. The value of U.S. IT exports to the EU vastly understates U.S. firms' competitiveness in the region because global U.S. IT equipment manufacturers frequently supply the European market from manufacturing plants located outside the United States.

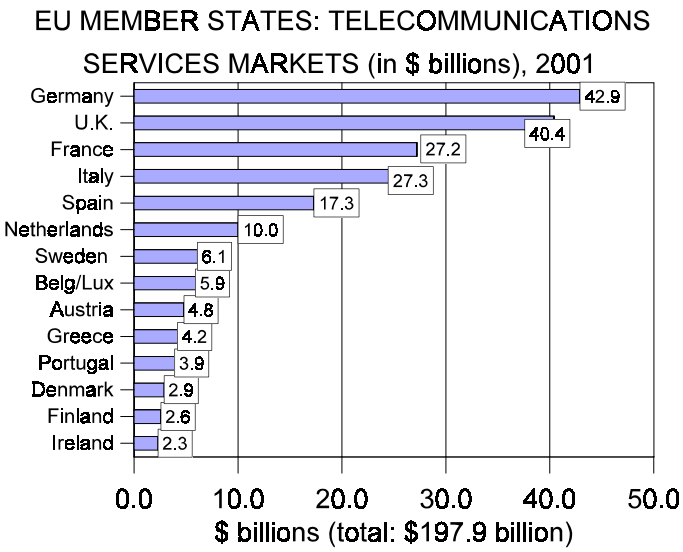
ideas—and gain experience. Because of this perceived edge, many small software and Internet firms in Europe are eager to partner with U.S. companies to gain the latter's technological and marketing expertise.[38]

TELECOMMUNICATIONS

Second largest regional telecommunications market

Western Europe's telecommunications market, like its IT market, is the second largest regional market globally, after that of North America. The total value of the 15 EU countries' telecommunications services markets was €224.94 billion ($197.9 billion) in 2001, according to *EITO 2002*. The bulk (55 percent) of the market in western Europe during 2001 was basic wireline (including voice, Internet, and online) services,[39] while 39 percent was wireless (mobile) services. The remaining 6 percent was switched data and leased line services. In order, Germany, the United Kingdom, France, and Italy have the region's largest telecommunications services markets (Figure 2-6).

Figure 2-6



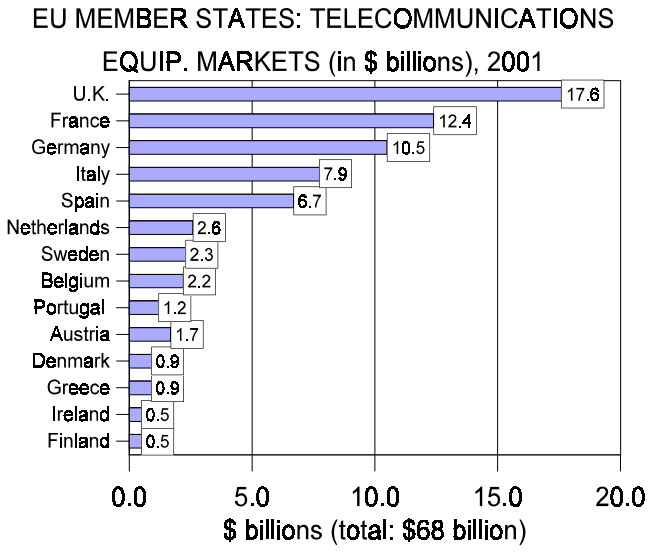
Source: EITO 2002

The region's telecommunications equipment market was valued at $68 billion in 2001, according to Reed Electronics Research's *Electronics Industry Yearbook 2002*. The market for wireless telecommunications equipment was substantially larger than for wireline equipment, $40 billion and $28 billion, respectively, giving wireless equipment a 59 percent market share. In order, France, the United Kingdom, Germany, and Italy have the region's largest markets for telecommunications equipment (Figure 2-7).

[38]European industry representatives, interviews by USDOC staff, Germany and France, Nov. 7-16, 2001.

[39]Wireline telecommunications services are also commonly called "fixed line" because they are provided by fixed (not mobile) networks.

Figure 2-7



Source: Reed Electronics Research, 2002

Growth moderating in telecommunications services

Despite considerable turbulence, the telecommunications services market in western Europe proved to be more resistant to the global economic slowdown during 2001 than other information and communications technology sectors in the region. Many "new economy" businesses in the region that were expected to contribute to an explosion in communications services went bankrupt during the year, as the ripples spread from the slowdown in IT and telecommunications that began in the United States in early 2000.

Nevertheless, the value of the telecommunications services market in western Europe continued to grow, even if at a more moderate pace than the double-digit levels of previous years. It increased by 9.5 percent in 2001 and is expected to expand only 6.7 percent in 2002, according to *EITO 2002*. Its continued growth is explained by internal factors such as increasing competition and high penetration in wireless communications. The growth is also driven by the emergence of new value-added services, new mobile data services, and accelerating deployment of high-speed Internet access technologies such as digital subscriber line (DSL) and cable modems.

Telecommunications equipment expenditure declines, resumes growth

The market for both wireline and wireless infrastructure equipment in western Europe declined sharply (19 percent in 2001), according to both the Telecommunications Industry Association (TIA)[40] and *Global Mobile*. The market for customer premises equipment also declined by 1.3 percent in 2001, according to *EITO 2002*.

The primary reason for the decline in spending on telecommunications equipment during 2001 by both network operators and end-users was the rising debt of network operators, who postponed much of their procurement, and the weak economy. However, equipment expenditure is expected to increase in 2002 at a rate of 2.4 percent for infrastructure equipment and 3 percent for customer premises equipment, according to TIA and *EITO 2002*, respectively. TIA projects the growth in

[40]TIA published this data and analysis in its *2002 Telecommunications Market Review and Forecast*. TIA's data sources were Gartner Dataquest, Wilkofsky Gruen Associates, and internal (TIA). TIA uses a broader definition for western Europe than this report, by including Norway and Switzerland as well as the 15 EU Member States.

infrastructure expenditure by public networks in the region to accelerate through 2005, achieving a CAGR from 2001 through 2005 of 5.5 percent.

Growing competition over the last decade

Western Europe's telecommunications sector has changed dramatically in the past few years. As in many other parts of the world, this region's telecommunications markets used to be served by state-owned monopolies. By 1995, the EU had liberalized mobile communications as well as the transmission of data communications.

In addition, the EU recognized that it would be in its own interest to make its Member State economies more competitive by liberalizing basic wireline markets and encouraging competition. To this end, it adopted two new laws, the Telecommunications Services Directive and the Open Network Provisions Directive. These two directives both applied to basic wireline telecommunications service and related infrastructure, and they were implemented by all EU Member States except five by January 1, 1998.[41]

The Telecommunications Services Directive required Member States to abolish all special and exclusive rights related to nationally owned telecommunications service providers, and to open all telecommunications services markets and related infrastructure to full competition from both domestic and foreign firms. It also granted new service providers the right to build their own telecommunications infrastructure. In addition, it required Member States to establish regulatory authorities independent of service providers, and to transpose these directives into pro-competitive regulatory regimes with transparent and nondiscriminatory regulations. The Open Network Provisions Directive provided more specific guidelines to assure fair competition in telecommunications markets.

Many changes have occurred as a result of these directives. By 2002, all EU Member States had liberalized their basic wireline telecommunications markets and established pro-competitive regulatory regimes, although levels of competition vary widely by country. Telecommunications regulatory authorities, independent of telecommunications operators, have been established in all countries. Where competition has succeeded, primarily in long-distance and international wireline services, telecommunications prices have dropped, innovative new services have multiplied, and a new focus on quality of service has developed.

[41]The full title of the Telecommunications Services Directive is Directive 96/19/EC of 13 March 1996 amending Directive 90/388/EEC with regard to the implementation of full competition in telecommunications markets. Both this Directive and the Open Networks Provision Directive can be found in the European Commission's competition web page at http://europa.eu.int/comm/competition/. Some EU countries instituted liberalization and competition in their telecommunications markets prior to these EU directives. The United Kingdom liberalized its telecommunications market starting in 1982, and as a result now has one of the most competitive markets in Europe. Five countries were allowed extensions to the directives' implementation deadline of January 1, 1998. Spain authorized full competition on December 1, 1998, and Ireland on January 1, 1999. Portugal, Greece, and Luxembourg have authorized full competition since then.

Remaining impediments to competition

Despite liberalization of basic telecommunications services and efforts to promote competition, significant impediments to effective competition remain in western Europe's telecommunications markets. This has been due in part to the uneven nature of the new national regulatory authorities' responsiveness to, and effectiveness vis-a-vis, incumbent telecommunications operators, which use their dominant market position to impede their competitors' business. This is the primary reason that local loop[42] unbundling[43] has progressed very slowly and western Europe's incumbent operators continue to dominate local markets for both telephone services and dial-up Internet access.

Incumbent telecommunications operators' foot-dragging has also delayed broadband deployment, which is just beginning to take off in western Europe. Broadband deployment using DSL took off only after incumbents were pressed by the European Commission and Member States to deliver high-speed Internet access, and when the incumbents recognized that they faced competition from cable modems in providing broadband access. The new entrants are beginning to win the support of the European Commission for their efforts to overcome the incumbents' abuse of their dominant position to delay local telecommunications competition, including high-speed Internet access.

Incumbents still dominate basic telecommunications services

Competition in most western European wireline telecommunications markets remains limited to long-distance and international services.[44] Even though most telecommunications operators in western Europe have been wholly or partially privatized in recent years, they continue to dominate their domestic markets for basic telecommunications services. Incumbent operators (i.e., Spain's Telefónica, Deutsche Telekom AG--DTAG, France Télécom--FT, and Telecom Italia) still controlled over 90 percent of their local markets for wireline telecommunications services in 2000. The notable exception was British Telecom, which controlled only 84 percent of local access lines in the United Kingdom, according to the European Commission.

However, new entrants have seized major shares of long-distance and international wireline markets in western Europe -- an average of 31.5 percent of international traffic

[42]The local loop, also known as the "last mile," is the common term for the part of the network that connects customers to the telecommunications companies' central offices.

[43]Unbundling allows a competitive operator to lease one or more parts of the incumbent's network without paying for the rest of the network (such as switches), which it may not need.

[44]Long-distance and international competition has progressed much more rapidly in Europe than it did in the United States after the divestiture of AT&T in 1984. Local competition has developed more slowly, as it has in the United States, due in part to the huge investments required. The European Commission and Member State governments have investigated incumbents for anticompetitive behavior periodically and have the power to fine them or sue them before the European Court of Justice.

and 24.2 percent of long-distance traffic by 1999, according to TIA.[45]

As well as Internet service provision

Incumbent operators in western Europe have parlayed their market heft into dominance in Internet service provision. Like in the United States, numerous new Internet service providers (ISPs) entered European markets in the late 1990s. However, these firms have consolidated in recent years as the market has shaken out, and this trend has been accelerated by falling share prices and the economic slowdown. In fact, most of the smaller ISPs that popped up in Europe during the Internet frenzy have gone out of business. Although numerous small ISPs still serve niche markets in western Europe, most Europeans connect to the Internet via incumbent telecommunications operators' subsidiary ISPs, such as DTAG's T-Online and FT's Wanadoo. In fact, T-Online is the largest ISP in Europe and Wanadoo is the largest ISP in the United Kingdom as well as in France.

Incumbents are translating their ISP market share into successful Internet portals, becoming formidable competitors to U.S. portals such as Yahoo!, AOL, and Lycos, which used first-mover advantages to create pan-European operations before the Internet caught on in the region. Portals such as DTAG's T-Online.de, FT's Wanadoo.fr, and BT's BTopenworld.com, leaders in their home countries, are becoming more aggressive in the pan-European market.

Incumbents compete outside their borders

The reach of incumbent telecommunications operators in western Europe extends beyond their own countries' borders for other types of services besides wireline. Many incumbents compete in each others' markets for mobile telecommunications services. For example, FT's mobile division (called Orange) owns mobile operations in every western European country except Spain. In addition, many of Europe's national telecommunications operators have established or partnered with pan-European data communications networks, connecting all of Europe's major cities, over the past decade. Some telecommunications operators in western Europe also compete outside of the region. DTAG is particularly active in the U.S. market, via its subsidiary, Voicestream, and in eastern Europe. Telefónica of Spain is the largest telecommunications service provider in Latin America.

Some competition does exist

Although western Europe's wireline telecommunications services market is dominated by large local players, a significant number of foreign firms have gained a foothold there. WorldCom and AOL/Time Warner (AOL/TW), for example, are active in most of the region, the former providing network access and an array of value-added services to businesses such as leased lines and data hosting. AOL/TW is the only major foreign ISP active in Europe, offering primarily dial-up Internet access as it does in the United States. However, despite the presence of AOL/TW's flagship online service in over ten European countries, especially Germany, France and the United

[45] *2002 Telecommunications Market Review and Forecast*. TIA's data source was the Organization for Economic Cooperation and Development.

Kingdom, AOL/TW usually places a distant second behind the ISP affiliated with the incumbent telecommunications operator. This is largely because of the incumbents' domination of the local loop, which is essential to access subscribers.

Smaller telecommunications operators, both from Europe and elsewhere, have had some success competing in the region, particularly on a pan-European basis. In addition, some small local telecommunications operators and ISPs serve limited geographic regions, such as cities or individual countries. Many of these small firms are encountering increasing difficulties due to the slowdown in growth and are seeking partners to benefit from economies of scale.[46] ISPs that are not affiliated with a telecommunications operator usually depend on the incumbent telecommunications operators to share the revenue earned from the ISPs' customers through dial-up Internet access.

More foreign competition in equipment markets

The competitive situation is slightly different for telecommunications equipment providers to the European market. In this industry, foreign telecommunications firms such as Lucent Technologies and Nortel Networks are very successfully competing alongside European firms such as France's Alcatel and Germany's Siemens. Multinational firms such as Lucent and Nortel have invested in European manufacturing plants, which supply a substantial share of the equipment they sell in Europe. Likewise, Motorola successfully manufactures and sells wireless equipment throughout the European market in competition with such leading European wireless manufacturers as Finland's Nokia and Sweden's Ericsson. In the past decade, Cisco and Juniper have also become major players in the European market, and are now the principal suppliers to the region's Internet infrastructure market. In addition, U.S. software suppliers have been particularly successful in selling software to European telecommunications operators for customer billing purposes. U.S. exports of telecommunications equipment to the 15 EU countries in 2001 were valued at $5.0 billion, a decline of 14 percent from $5.8 billion in 2000, largely due to the decrease in equipment purchases described earlier.[47]

Operators have fallen on hard times

During the bubble of the late 1990s and 2000, European telecommunications operators, like their counterparts in many other parts of the world, focused on building their networks or acquiring other networks, as well as rapidly implementing new technologies. Many European operators invested heavily in fiber optics, competing to lay fiber optic cables connecting cities throughout the region, as well as between Europe and other parts of the world. Operators also invested heavily in DSL, wireless local loop (WLL), mobile, and other access technologies. In a rush to compete, operators reportedly did not pay

[46]European industry representatives, interviews by USDOC staff, Germany and France, Nov. 12-16, 2001.

[47]Source: U.S. Department of Commerce. The value of U.S. telecommunications exports to the EU vastly understates U.S. firms' competitiveness in the region because global U.S. telecommunications equipment manufacturers frequently supply the European market from manufacturing plants located outside the United States.

enough attention to market trends and whether demand supported their investments, and focused on sales and revenue growth rather than profit margins.[48] In addition, market liberalization in the region in the late 1990s ushered in a flood of new telecommunications operators and ISPs.

Many firms have been hard hit by the economic slowdown and contraction of demand for telecommunications services. As the market has contracted, demand for bandwidth has dried up, and oversupply has left a glut of cheap optical fiber transmission lines in Europe, both lit and unlit. As elsewhere, approximately 90 percent of optical fiber in Europe remained unlit in spring 2002, according to the European Competitive Telecommunications Association (ECTA).[49] Many of the wholesale operators that laid the cables, such as Viacom and Global Crossing, have been negatively affected by the market shift and have gone bankrupt or are struggling to remain afloat.

Because of falling demand and oversupply, many of the new telecommunications operators from the late 1990s have left the market. Other telecommunications operators have cut back investments in their networks, partly because of tightening financial markets. This capital problem has been compounded for many of the operators who now carry immense debt burdens due to the estimated $100 billion they have spent in total in the past few years to acquire 3G licenses in various countries of western Europe.

Now, retrenchment and consolidation have become the norm. Many incumbent operators have cut their investments and service offerings. In addition, most of the new operators that entered the European market during the bubble period have either gone out of business or merged with other operators. In many countries the number of new entrants has fallen by 70 percent in the past two years, according to ECTA. Some of the incumbents have even begun to consolidate; in spring 2002 the incumbent operators of Sweden and Finland agreed to merge. ECTA expects the consolidation trend to continue throughout Europe over the next year.

It is unclear how long recovery in Europe's telecommunications sector may take, but some observers expect recovery to start in the fall of 2002. Further, it is still very unclear whether or when mobile operators will be able to recoup their expenditures for 3G licenses. Until operators resume investments in their networks, most equipment suppliers will continue to suffer.

Three main drivers of growth

Growing competition, falling profit margins from basic voice services, and the slowdown of growth in western Europe's telecommunications markets have forced European telecommunications operators to focus on three main areas of growth: value-added telecommunications services, broadband, and mobile communications.

[48] European industry representatives, interviews by USDOC staff, Germany and France, Nov. 12-16, 2001.

[49] "State of the European Telecommunications Market," European Competitive Telecommunications Association, presentation in Washington, DC, April 19, 2002.

First driver: value-added telecommunications services

As economies have slowed and profit margins from basic services have fallen, major operators in Europe, including European as well as U.S.-headquartered firms such as WorldCom, are increasing their emphasis on moving up the value chain to offer value-added services, including bandwidth provisioning, managed data networks, web and data hosting, and other managed network services. At the same time, European corporations and other large organizations increasingly use value-added telecommunications services as they connect their networks to the outside world and increase their reliance on these external connections.

Industry representatives comment that demand in western Europe for value-added telecommunications services among businesses is not yet as advanced as in the United States.[50] This is partly due to the fact that using extranets was not common in western Europe until the latter half of the 1990s.

Before 1995, private LANs in western Europe could not be interconnected with public switched telephone networks (so as to avoid competition with the monopoly telecommunications operators). Firms or other organizations could only have networks that were "closed user groups." Liberalization of the EU market for data transmission in 1995 removed this restriction, stimulating investments in extranets and other private networks.

In recent years, leased line usage has grown rapidly as prices have fallen, and leased lines have become the most commonly used access mode for data networks of large and medium-sized European businesses. Leased lines now account for seven percent of major operators' revenues, according to IDATE.[51] Nonetheless, 13 telecommunications companies and trade associations complained to the European Commission in November 2001 that, because incumbent telecommunications operators dominate most leased line markets in the EU, leased lines are still too costly when compared to prices in the United States– nearly four times as costly, according to the Yankee Group.[52] As a result, industry experts predict that leased line usage will decline in western Europe over the next five years as IP-based virtual private networks (IP/VPNs) based on DSL become more popular. Some medium-sized and large European companies are reportedly already moving from leased lines to IP/VPNs to save money. At the same time, operators are striving to meet this demand. The rollout of IP/VPN services is gaining momentum as global and pan-European operators launch a wide range of IP/VPN services throughout western Europe.

[50]European industry representatives, interviews by USDOC staff, Germany and France, Nov. 12-16, 2001.

[51]"Major European Operators' Leased Line Charges," IDATE, IDATE News No. 193, October 1, 2001.

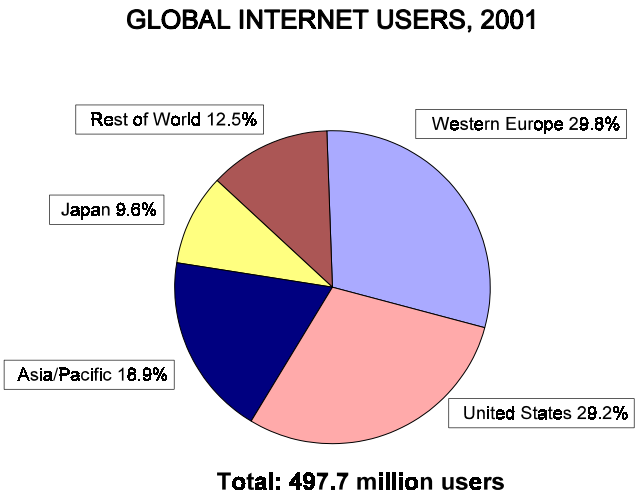
[52]The Yankee Group reported that in the last quarter of 2000 the monthly cost for a 5 kilometer 34/4.5 Mbps circuit was slightly less than $8,000 in western Europe compared to less than $2,000 in the United States. The Yankee Group looked at incumbent pricing in France, Germany, Sweden, and the United Kingdom.

When transmission of data communications was opened to full competition in 1995, many European incumbent operators were not as experienced at selling value-added services as their U.S. counterparts. As a result, U.S.-based firms became very strong in the region, and now sell a substantial amount of value-added telecommunications services in Europe. Firms such as AT&T, IBM, and General Electric Information Services have been particularly successful in providing value-added services to the European business sector. However, European incumbents recently have become much more competitive in serving this market and have kept much of the leased line market in most countries.[53] Although they continue to target mainly the large European firms, some operators have begun to sell into the largely untapped SME market. However, industry analysts observe that the operators need to better target SMEs for value-added services.[54]

Internet use

Awareness in Europe of the Internet has risen substantially, bringing many more people online. In 2001, 148 million Europeans used the Internet, or 39 percent of the population, according to IDC's "Internet Commerce Market Model Version 7.3" publication. Western Europe currently trails the United States in the adoption of the Internet, but it is closing the gap quickly. In fact, although the U.S. Internet penetration rate per capita of 54 percent,[55] was much higher than that of western Europe, at the end of 2001 the absolute number of Internet users in western Europe exceeded that of the United States. IDC reports that western Europe had 29.8 percent of the world's 497.7 million internet users in 2001, while the United States had 29.2 percent (Figure 2-8).[56] IDC predicts western Europe's Internet usage will have a CAGR of 16 percent from 2000 to 2005, compared to 11 percent in the United States.

Figure 2-8



Source: IDC, 2001

Constraints on dial-up Internet

As elsewhere, the vast majority of Internet users in western Europe currently access the Internet over ordinary telephone lines, known as "narrowband" access. However, dial-up Internet usage is discouraged by the time-sensitive charges of most European

[53]"Major European Operators' Leased Line Charges."

[54]European industry analysts, interviews by USDOC staff, Germany and France, Nov. 12-16, 2001.

[55]The source of U.S. data is *A Nation Online,* National Telecommunications and Information Administration/Economics and Statistics Administration, February 2002.

[56]As cited in "Around the World with Internet Users," eMarketer, January 14, 2002.

telecommunications operators for dial-up Internet access.

Since 2000, telecommunications regulators in several key EU countries have encouraged incumbent telecommunications operators to offer flat-rate interconnection to ISPs so that these ISPs may offer flat-rate ("unmetered") dial-up access to their retail Internet subscribers. The principal regulatory model for doing so is known as "flat-rate Internet access call origination" (FRIACO), which was first adopted by the United Kingdom. Following its decision to require the British incumbent to offer FRIACO in May 2000, the telecommunications regulator in the United Kingdom required in February 2001 that FRIACO be provided at the incumbent's regional switches rather than at local switches. This makes it easier for new entrants to offer flat-rate services by removing the need for them to invest in the capacity to reach local exchanges. According to a November 2001 report of the European Commission,[57]
40 percent of the ten million homes in the United Kingdom with Internet had already chosen to use unmetered Internet packages, for which the retail price started at €21 ($18).

Progress towards flat-rate Internet access in other Member States has been slower than in the United Kingdom. The incumbent in France made flat-rate interconnection offers to new entrants at both the local and regional levels that were expected to be used by operators by the autumn of 2001. By November 2001, the regulators in Germany, the Netherlands, Portugal, and Spain had also introduced requirements for incumbents to offer flat-rate interconnection, according to the European Commission. However, ISPs had yet to accept the offers of the incumbents in these countries for various reasons, usually involving unreasonable conditions attached to them. At the same time, reviews of Internet access pricing were under way or planned in four more EU Member States. The European Commission stated in its November 2001 report that flat-rate interconnection for Internet access was one of the five crucial issues facing EU regulators. The report also noted that many in European industry regard increased narrowband access as the gateway to the higher quality services available via broadband access, notably DSL and cable TV.

Second driver: broadband[58]

Although long-haul networks have been built out in Europe, bottlenecks are plentiful at the local level. In fact, the European Commission announced in February 2002 that the broadband penetration rate in the region was less than three percent.[59] Because competition in the provision of broadband

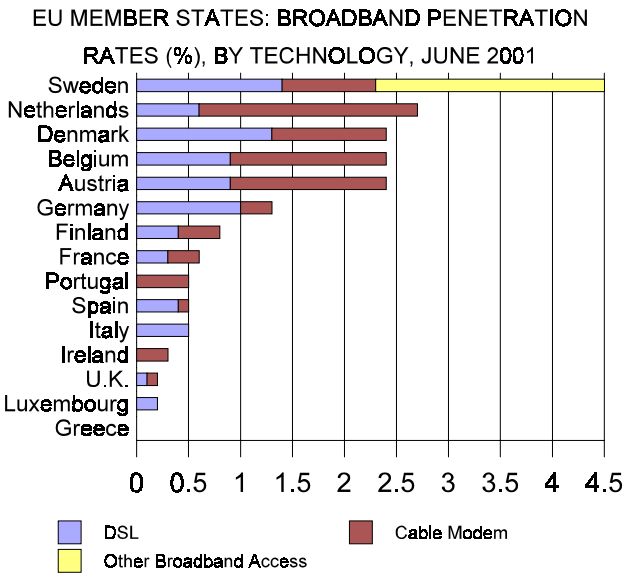
[57] *The Seventh Report on the Implementation of the Telecommunications Regulatory Package*, the complete English text of which is available at http://www.europa.eu.int/information_society/topics/telecoms/implementation/annual_report/7report/index_en.htm.

[58] Definitions of broadband vary widely. The European Commission's broadband figures are based on the definition of the Organization for Economic Cooperation and Development (OECD). The OECD uses the term high-speed, or broadband, for those services with a downstream data transfer rate of at least 256 kilobits per second (kbps) and an upstream data transfer rate of at least 64 kbps, which includes ADSL.

[59] "eEurope 2002: eEurope Benchmarking Report," Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions, Brussels, February 2002.

Internet access was phased in at different speeds in various EU Member States, broadband penetration rates vary widely in western Europe. In addition, as in the United States, some European subscribers have experienced long waits and frustrating service delays. The broadband penetration rate in June 2001 exceeded one percent in only the following six Member States: Sweden (4.5 percent), Netherlands (2.8 percent), Austria (2.4 percent), and Belgium as well as Denmark (2.3 percent each), and Germany (1.3 percent), as shown in Figure 2-9.[60]

Figure 2-9



Source: European Commission, July 2001

Most broadband access is via DSL and cable modems

Currently, high-speed internet access in western Europe is provided most often by DSL or cable modems, as indicated in Figure 2-9. Nonetheless, the penetration of both technology platforms in the region is very limited. This stems primarily from the lack of competition in the region, even though cable TV networks have offered cable modem access to certain parts of the market for many years.

Until 2000, incumbent telecommunications operators in western Europe were reluctant to launch DSL for fear of undercutting their own sales of more profitable leased lines to corporations and dial-up Internet access to residential and small business users. Incumbents started to roll out DSL commercially in 2000, when they recognized that they could otherwise lose their dial-up Internet customers to the cable TV operators, as the competitive landscape in the latter market segment began to change.

Traditionally, most cable TV operators in western Europe were owned by incumbent telecommunications operators. These incumbents had little incentive to make the substantial investments to upgrade their networks for the two-way communications necessary for high-speed Internet access by cable modems. However, by 2000, most incumbents recognized that the European Commission and Member States expected them to divest themselves of their cable TV networks. By then, it was widely recognized that cable TV networks provided one of the few available platforms for competing operators to provide local telecommunications services, including broadband Internet access.

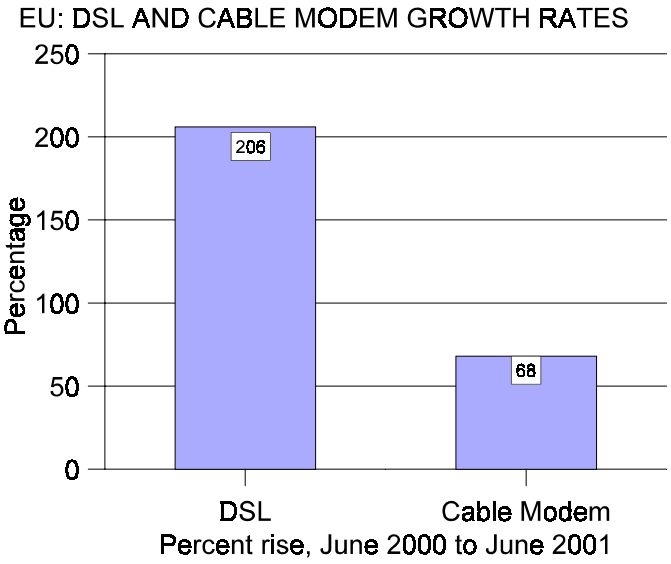
Due to their desire to exploit first mover advantages, most incumbents in the region have rolled out DSL (usually asymmetrical, or

[60]Ibid.

ADSL[61]) as rapidly as they could since 2000. Since that time incumbents, rather than competitive operators, have provided the vast majority of DSL in the region. This is because competitors did not have access to the incumbents' local loops until very recently, preventing the former from offering their own DSL.

This burst in DSL rollout caused DSL to overtake cable modems in 2001 as the most common broadband access technology in the EU, according to the European Commission. The average increase of DSL penetration in all EU countries from June 2000 to June 2001 was 206 percent, compared to a 68 percent rise for cable modem penetration (Figure 2-10).[62] However, the penetration of each technology varies widely by individual country. Further, neither access platform is very widely deployed yet. The European Commission reported that as of June 2001, only 18 percent of cable infrastructure in the EU had been upgraded for two-way transmissions, and in some countries cable systems had not been upgraded at all.[63]

Figure 2-10



Source: European Commission, November 2001

In an attempt to accelerate DSL deployment, on December 18, 2000, the EU issued the Local Loop Unbundling Regulation,[64] which mandated that such unbundling occur in all Member States by January 1, 2001 (for an explanation of EU regulations, see Text Box 2-3). However, local loop unbundling has not been nearly as successful in western Europe as many governments had hoped. Incumbents have succeeded in stalling the unbundling process, and national regulatory authorities' actions against them have been inconsistent across Member States. Fewer than 800,000 subscriber lines were fully unbundled in EU Member States as of May 2002, according to the European Commission.

[61]ADSL is asymmetrical in that its downloading operates at a slower speed than its uploading.

[62]*7th Report on the Implementation of the Telecommunications Regulatory Package*.

[63]Ibid.

[64]Regulation 2887/2000 of the European Parliament and the Council of 18 December 2000 on unbundled access to the local loop, OJ L 336, 30/12/2000 p. 4.

Text Box 2-3

WHAT ARE EU REGULATIONS?

A regulation is a type of binding EU legislation. Once approved by the EU, regulations apply in Member States immediately, without first having to be transposed into national laws.

In February 2002, in response to long-standing complaints by competitive operators, the European Commission initiated infringement proceedings against France, Germany, Ireland, the Netherlands, and Portugal for failing to establish and enforce adequate regulatory frameworks for local loop unbundling in their countries. As of June 2002 these proceedings had not been completed.

Even where the local loop has been unbundled, incumbents have been reluctant to allow shared access to their lucrative local wires (as required under the Local Loop Unbundling Regulation), developing strict conditions regarding shared access that have curtailed the ability of competitors to offer DSL.[65] The European Commission's November 2001 report stated that shared access to the local loop was available in only four Member States: Belgium, Denmark, Finland, and Sweden.[66] Consequently, as of January 2002, competitive DSL providers had been able to use only 143,697 subscriber lines to provide DSL, accounting for only 21 percent of the subscriber lines that had been fully unbundled by then, according to ECTA. In December 2001, the European Commission initiated infringement proceedings against three Member States (Germany, Greece, and Portugal) for failing to implement shared access to the incumbents' local loops, but it since dropped the proceedings once these Member States introduced requirements for shared access.

Another factor slowing competition in DSL provision has been pricing of unbundled lines. The French consulting firm IDATE reported in March 2002 that retail ADSL prices charged by European incumbents were in most cases below the wholesale prices incumbents charged their competitors for access to the unbundled lines. In late 2001 and early 2002, the European Commission accused two incumbents of charging their competitors excessive prices for wholesale access to ADSL and for local loop unbundling, respectively.

The European Commission opened a proceeding against Wanadoo, the Internet portal of the French incumbent operator, France Télécom, in December 2001, for predatory pricing of its high-speed Internet access service, ADSL. In May 2002, the European Commission accused the German incumbent telecommunications operator, DTAG, of similar anti-competitive behavior. The European Commission sent DTAG a "statement of objections" alleging that DTAG had abused its dominant position since 1998 by charging its competitors higher fees for wholesale access to the local loop than what DTAG's subscribers pay for retail access. In a press release in May 2002, the European Commission announced its position on this issue to be that "vertically integrated operators like DT (AG) must indeed fix their

[65] Shared access, which allows telecommunications operators to share the existing line to the end-user, is critical to the deployment of DSL over local access lines when the incumbent dominates these lines.

[66] *7th Report on the Implementation of the Telecommunications Regulatory Package*.

retail prices at a level sufficiently above the wholesale prices so as to allow new entrants to compete." Wanadoo and DTAG had until July 2002 to present arguments contesting the European Commission's preliminary findings, after which time the European Commission has the power under Article 82 of the Treaty that established the EU to prohibit any abuses of dominance that it finds. Further details on the German and French telecommunications markets are available in Chapters 3 and 4, respectively.

Other broadband access technologies

As in the United States, after an initial fervor about wireless local loop (WLL) technologies,[67] excitement about their prospects has abated in western Europe. Some WLL service providers who had expanded aggressively in the region, such as U.S.-based Winstar, have all but abandoned plans for the European market or gone bankrupt. Nonetheless, some industry representatives interviewed in Europe believe that WLL will continue to have a market niche there, but with a smaller, more precisely defined target market.[68]

An interactive medium which many analysts believe has great potential in at least some European countries is digital TV-based interactive services (ITV). In fact, European consumers already are more frequent users than their U.S. counterparts of ITV. The research firm Jupiter MMXI predicts that by 2006, 86 million households in western Europe will be accessing the Internet via DTV.[69] However, ITV penetration rates vary considerably by country and will probably continue to do so, as is also true of the entire cable TV market.

The United Kingdom is already the world's most advanced market for DTV, and its use of DTV-based interactive services is very strong. This is largely because the United Kingdom was the first country in the world to allow its cable TV operators to offer telecommunications services, as part of its liberalization of basic wireline telecommunications services in 1992. Since then, several U.S. companies have taken advantage of this opportunity to explore the convergence between cable TV and telecommunications by investing in British cable TV networks. During the past decade, telecommunications operators in the United Kingdom have made substantial investments in new technologies, due in part to strong encouragement by the British government. For example, NTL Interactive offers interactive web-enabled shopping services combined with cable content. Users can view music videos, research information on artists and albums, and place orders online, all via the same service.

There are already over 7 million DTV subscribers in the United Kingdom, receiving service from BskyB, NTL and Telewest, according to *Digital Broadcasting.com Newsletter*. Continental Research of the United Kingdom recently concluded that 30 percent of these DTV subscribers would pay £2.5 ($3.64) per month for various kinds

[67]Wireless local loop, also known as fixed wireless access, uses radio signals as a substitute for the wireline local loop to connect the end-user to the switches of the telecommunications network.

[68]European industry representatives, interviews by USDOC staff, Germany and France, Nov. 12-16, 2001.

[69]As cited in "Europeans Tuning in to Digital TV," eMarketer, August 1, 2002.

of messaging applications on their TV sets. DTV and ITV are not widely used in Germany and France because, until recently, their incumbent telecommunications operators owned the countries' cable TV networks and therefore felt no competitive pressure to invest in upgrading these cable TV systems.

Another broadband platform planned in western Europe is satellites. However, this is still very much in the planning stages. For example, satellites are viewed by the British government as away of providing broadband access to users in remote areas not readily accessible by DSL or cable TV.

Broadband's future in the region

In addition to constraints due to inadequate competition, broadband investment by incumbents and their competitors has reportedly been curtailed because of concerns about the downturn in the market. Nonetheless, broadband use by both residential and business (mostly SME) sectors is expected to become much more widespread in western Europe over the next five years as competition increases, and providers offer various technology platforms to access the local loop. This trend is driven in part by a concerted effort of the European Commission to increase this competition (detailed in the *eEurope* section near the end of this chapter), leading to improvements in quality of service and decreases in prices.

One indication that the European Commission's recent efforts to reduce wholesale prices for DSL is likely to have a strong pro-competitive impact is shown in recent developments in the United Kingdom. The press reported a tremendous surge in demand for DSL by ISPs in the United Kingdom immediately after the incumbent telecommunications operator cut wholesale DSL rates by about 50 percent in April 2002. IDC predicts that western Europe will have more than 50 million broadband access connections by 2005, when the broadband market will generate $19 billion in annual revenues. In 2001, the *Economist* predicted that France, Germany, the United Kingdom, and the Netherlands will lead western Europe in absolute terms of new broadband connections through 2005, and Scandinavia will lead in terms of penetration rates.

Several factors will be critical to broadband's uptake among western Europe's consumers. Some industry sources believe that because fewer Europeans than Americans use dial-up Internet access, Europeans are not as aware of what the Internet has to offer and thus do not see the need for broadband Internet connections. However, the trend towards flat-rate narrowband access to the Internet in western Europe, described earlier, is likely to increase the use of dial-up internet access there. Another factor was revealed by a recent European Commission study, which found that consumers are not yet willing to pay a premium for broadband. There currently is no "killer application" to convince the majority of European consumers they need broadband.[70]

Third driver: mobile communications

Western Europe has the world's highest mobile penetration rate– approximately 72 percent, according to Kagan World Media (Figure 2-11). The region's mobile

[70]"Broadband Lacks a European Audience," *CyberAtlas*, February 5, 2002.

penetration rate is far ahead of that of the United States, at 49 percent, and even Japan (57 percent).

Figure 2-11

EU MEMBER STATES: MOBILE PENETRATION RATES, 2001

Country	No. Users 12/01 (thous.)	Penetration rate	% Change 2000-01
Austria	6,572.9	81.0%	5.9%
Belgium	7,698.0	75.1%	36.8%
Denmark	3,866.7	72.6%	14.2%
Finland	4,259.0	82.0%	14.1%
France	35,922.3	59.6%	23.6%
Germany	56,126.7	68.5%	16.3%
Greece	9.8	74.6%	34.2%
Ireland	262.0	79.7%	20.2%
Italy	50,981.4	88.9%	21.4%
Luxem.	445.0	109.6%	32.8%
Neth.	12,069.0	76.0%	12.2%
Portugal	8,586.8	85.7%	28.8%
Spain	29,654.9	74.9%	22.5%
Sweden	7,154.0	80.5%	12.0%
U.K.	47,019.0	79.5%	17.4%
EU-15	270,628	72.2%	18.2%
United States	130,799	49.4%	19.1%

Source: Kagan World Media, 2002

Mobile communications services account for a growing portion of the EU's telecommunications services market (by value), up from 18.5 percent in 1997 to 35.5 percent in 2000, according to IDATE.[71] Western Europe has had more mobile than fixed (wireline) telephone lines since 2000.

As elsewhere, it is generally assumed that the mobile phone subscriber penetration rate in western Europe can not go much beyond 80-85 percent, known as the "saturation" point. However, industry observers point out that a number of European users have more than one mobile phone–one for personal use, one for overseas travel, one PDA, etc. Consequently, operators inflate their subscriber data by counting every mobile subscription as though it were a separate subscriber, and counting every occasional prepaid user (who account for some 70 percent of "subscribers" in western Europe) as though the user had a monthly subscription contract. This explains why the mobile penetration rate in some cases already exceeds 100 percent (see Figure 2-11).

Reasons for rapid mobile uptake

Many analysts attribute the early and rapid uptake of mobile phones in western Europe largely to the economies of scale resulting from the adoption of a single, mandatory standard throughout the EU for second-generation (2G) mobile communications.[72] In 1987, all European stakeholders agreed on one standard for the system of digital mobile telephony that is currently deployed

[71] "The New Mobile Internet Scenarios," IDATE, IDATE News No. 94, October 1, 2001.

[72] Generally speaking, the European Commission and European Member State governments play a larger role in telecommunications standards development than does the U.S. government in the United States. In the United States, 2G technology development was market-driven, resulting in deployment of multiple networks based on multiple standards for 2G.

throughout Europe and most of the world, known as the Global System for Mobile Communications (GSM). This standard was required by the European Commission and EU Member States in order to assure total compatibility of mobile phones and infrastructure throughout the EU, allowing users to roam from one country to another with uninterrupted service.[73]

Another reason for the rapid adoption of mobile phones in western Europe is that mobile communications was the first telecommunications service in the region to be opened to competition there, in 1995. This is demonstrated by the fact that the EU countries with the most competition, each having four mobile operators (Germany, Italy, and the United Kingdom), have relatively high mobile penetration rates. Two other reasons for the success in the region of mobile telephony include the use in Europe of a calling-party-pays system, which helped allay mobile phone users' initial concerns about paying for both calls received and calls initiated. Finally, calls from mobile-to-mobile are cheaper than wireline-to-mobile in Europe because of telecommunications rate structures that cross-subsidize mobile communications.

More competition among mobile operators

Incumbent telecommunications operators in western Europe do not dominate their home markets for mobile communications as much as they do for wireline telecommunications. For example, DTAG controls only 41 percent of the German mobile market, while its principal rival, Vodafone/Mannesman, controls 39 percent. A key reason for mobile telephony's more competitive landscape is, again, the relatively early liberalization of this telecommunications sector (1995) compared to wireline liberalization (1998), which allowed more opportunity for competition to develop.[74] Incumbents do not have the first-to-market advantage in mobile that they have in wireline communications, because their competitors had the opportunity to enter the GSM market at the same time as incumbents did. Given the choice between incumbents and new entrants, many users preferred the offerings of the new, private mobile operators to those of the former monopolists.

There has been considerable consolidation of mobile operators in western Europe since 1999, in order to take advantage of economies of scale, making Vodafone of the United Kingdom and Orange of France the largest two regional operators. With its takeover of Germany's Mannesmann in 1999, Vodafone became the number one mobile operator in western Europe in terms of the number of subscribers. As a result of the acquisition by France Télécom (FT) of the United Kingdom's Orange in 2000, the wireless division of FT has been renamed as Orange, and it is now the second largest player in the regional mobile market, according to IDATE.

[73]Prior to GSM, in the first generation of mobile communications (which was analog), there were eight different mobile telecommunications standards in western Europe. Now, GSM is the most widely used 2G mobile standard in the world, accounting for about 70 percent of the world mobile market.

[74]Although, as in wireline telecommunications, some EU countries liberalized their mobile communications markets earlier than the EU deadline.

Mobile operators' challenges

Mobile operators in Europe face various challenges. In addition to slower growth due to the general economic downturn and tightening financial markets, and the challenges of rolling out new 3G networks, they face cuts in two revenue streams they have long enjoyed. Regulators are beginning to decrease mobile operators' charges for terminating calls from wireline networks, because these charges unfairly discriminate against wireline operators. Such charges comprise 20-25 percent of mobile operators' average revenue per user (ARPU), according to ECTA.[75] Further, in April 2002 the European Commission started to take action against a number of mobile operators for their high roaming fees, which ECTA reports comprise another 5-15 percent of their ARPU. These steps to regulate mobile operators' rates are new in western Europe, where mobile communications has been exempt from the kind of strict regulation faced by wireline operators ever since competition was introduced into mobile communications in 1995. The rationale for regulating mobile operators' rates is the growing recognition in certain Member States, such as France, that their mobile communications market is not fully competitive, because certain mobile operators have significant market power.

Mobile data communications

Because of the sharp slowdown in subscriber penetration growth rates since 2000, industry representatives and analysts believe that the mobile phone market in western Europe is approaching saturation. As a result, mobile telephone operators' focus has shifted from gaining new subscribers and market share to retaining current customers and increasing ARPU. They view new mobile data communications services as the best way of reaching these objectives (in addition to increasing their operational efficiency by decreasing their costs). Mobile data communications has accounted for a small share of mobile operators' revenues for some time, because this market is currently driven largely by consumers, whose expenditures on such services are relatively low. Nevertheless, operators hope to increase their earnings from business clients by introducing new data communications services such as mobile access to corporate networks and wireless e-mail that can support attachments.

There is a great deal of uncertainty on how fast mobile data communications will take off in western Europe, although many operators are banking on rapid growth over the short to medium term. Mobile access to the web, based on the wireless access protocol (WAP) over GSM networks was launched throughout western Europe with great fanfare in the beginning of 1999. However, people reportedly were disappointed by WAP's high prices, slow speed, and the low quality of its content. Early versions of WAP were ultimately a failure in Europe, with only 5.5 million subscribers by the end of 2000, according to IDATE.[76] Nonetheless, other mobile Internet access technologies are expected to benefit from the lessons learned from WAP and succeed in a region where PC penetration is not as great as in the United States (where the Internet has been a PC-centric platform).

[75] "State of the European Telecommunications Market."

[76] "The New Mobile Internet Scenarios."

SMS now, MMS in the future?

An indicator of this potential is the explosion of short message services (SMS)[77] over GSM networks in western Europe, particularly among teenagers, with a 400 percent increase from 1999 to 2000 in the number of SMS messages sent per user, according to IDATE.[78] SMS in the region has benefitted from interoperability between all European GSM operators and the high mobile subscriber penetration rate. According to Frost & Sullivan, by April 2002, European mobile operators earned more than 10 percent of their total revenues from SMS services.[79] Frost & Sullivan further reported that European operators currently support an average of
186 billion messages per year, and it predicts this will rise to 265 billion messages per year by 2006. SMS allows the downloading of weather or stock updates from a WAP site using GSM phones with a plug-in subscriber identification module (SIM) card,[80] which have embedded micro-browsers that function like a PC web browser. SIM cards can also enable secure payments for m-commerce.

To capitalize on the popularity of SMS, some operators and handset manufacturers have begun to invest in developing enhanced, or "next-generation," SMS technologies. There is also a growing interest in developing m-commerce over SMS to generate additional revenue. Content owners, too, seek to cash in on the success of SMS-based services. In March 2002, Nokia announced plans to start shipping later in the year handsets with color screens that support multimedia message services (MMS), which is an upgrade of SMS to include pictures. T-Mobile of Germany plans to launch MMS throughout Europe during 2002, using Sony Ericsson handsets, according to *CIT Publications*.[81] However, these plans may be over optimistic, because there are no reports of the roll-out starting in the United Kingdom in June 2002, as was originally announced.

Despite the excitement, MMS is not yet used widely in Europe, and it may take a few years before it is fully deployed and market adoption of MMS handsets occurs there, according to Frost & Sullivan.[82] Nonetheless, Lehman Brothers forecasted in January 2002 that 50 percent of all handsets could be MMS-enabled by the end of 2002.[83]

[77]SMS is a wireless service for sending messages of up to 160 characters to GSM mobile phones. SMS is similar to paging, but it does not require the receiving mobile phone to be active; messages are stored for a number of days until the phone is activated.

[78]"The New Mobile Internet Scenarios."

[79]"Europe's SMS Love Affair Set to Continue Through 2004," Frost & Sullivan Press Release, March 12, 2002.

[80]SIM cards are removable smart cards developed specifically for mobile phone use that are already used with GSM phones in certain parts of western Europe. Like a smart card, a SIM card incorporates a computer chip that can be programmed to hold mobile phone settings, user's identity, and telephone directories, as well as the access information to the network of the provider. SMS applications may reside on the SIM. A SIM lock card, similar to the above, has the added function of "locking" a mobile phone to one provider (with regular SIM cards, users can switch providers by switching SIM cards). Further, SIM lock cards can allow the user to deplete pre-loaded units/ money.

[81]"GPRS Fails to Entice UK Consumers," *Communications Update*, April 19, 2002.

[82]"Europe's SMS Love Affair Set to Continue Through 2004."

[83]"MMS Could Open the Door to Mass Market," *Global Mobile,* January 30, 2002.

These projections notwithstanding, the more advanced mobile data technologies are expected to get off to a much slower start in Europe than had been anticipated. Only 5.8 percent of EU citizens recently surveyed reported they use their mobile phones to connect to the Internet.[84] Europeans' disappointing experience with WAP, based largely on overinflated expectations, has led to consumer skepticism towards the faster speeds promised with new mobile services. Until mobile applications with enough proven features, speed, or high-quality content to drive demand come on the market, this skepticism is likely to remain. At the same time, some content providers in Europe report that the negative experience with WAP has led them to curtail, at least for the near future, their investments in mobile Internet technologies.[85]

A big push toward 3G licensing

In 2000, in a plan coordinated by the European Commission, EU Member States began granting licenses for spectrum to offer third generation wireless services, known as 3G.[86] During 2000-2002, a total of 58 licenses for 3G wireless were granted in every EU Member State except Luxembourg. Eight Member States used auctions to distribute licenses, and the remaining six used traditional "beauty contests," whereby licenses were awarded based on discretionary administrative decisions of the national regulatory authorities. As a result of these differing approaches, licensing conditions for 3G roll-out and coverage vary considerably between the Member States.

The European Commission urged all Member States to license spectrum to operators for 3G networks by January 1, 2001, in order to give European operators a first-to-market advantage globally. Because of unexpected difficulties encountered, several Member States (such as France) delayed licensing until after this deadline. Recognizing that neither the industry nor the market was ready in 2000, France's telecommunications regulatory authority resisted pressure from the European Commission to grant licenses quickly, and postponed 3G licensing until April 2001.

At the request of the European Commission, the European Telecommunications Standards Institute (ETSI) developed its own standard for 3G wireless, Universal Mobile Telecommunications System (UMTS).[87] UMTS was subsequently adopted by the International Telecommunication Union (ITU). Although national regulatory authorities have allowed all but one licensee in each Member State to choose other international standards, as requested by the European Commission, all 3G licensees in western Europe have chosen to have their 3G systems comply with the standard for UMTS.

[84]"Holding Handhelds in Western Europe," eMarketer, January 29, 2002.

[85]European industry representative, interview by USDOC staff, Berlin, Nov. 12, 2001.

[86]Based on Internet protocol (IP), 3G phones are intended to provide high-speed access to the Internet, allowing images such as video to be displayed on hand-held devices. Theoretically, 3G's data transmission speeds are expected to reach at least 384 kbps.

[87]In contrast, 3G deployment in the United States is expected to use various international standards, based on the ITU standard. For example, Verizon Wireless is deploying CDMA-1X. Sprint PCS plans to deploy a similar network in the United States in summer 2002, according to "The U.S. May be Catching up to Europe in Wireless Communications," *The Economist,* March 14, 2002.

Figure 2-12

EU MEMBER STATES: 3G LICENSING			
Country	**Method**	**No. Licenses**	**Amount Raised ($M)**
Germany	Auction	6	$46,894
U.K.	Auction	5	$33,941
Italy	Auction	5	$12,185
Neth.	Auction	5	$2,529
France	B.C.*	2	$1,080
Austria	Auction	6	$690
Spain	B.C.	4	$478
Denmark	Auction	4	$473
Greece	Auction	3	$418
Belgium	Auction	3	$416
Portugal	B.C.	4	$339
Sweden	B.C.	4	Nominal
Finland	B.C.	4	Nominal
Ireland	B.C.	3	$145

Source: Kagan World Media, 2002.
*B.C.= Beauty Contest

Auction expense could impede 3G rollout

The launch of the highly touted and much anticipated 3G has been delayed in Europe for various reasons. In some countries, operators spent so much money acquiring licenses that they had difficulty obtaining financing to build 3G infrastructure in time to meet the schedules required under their licensing terms. The economic slowdown tightened capital markets, increasing the difficulty of financing the construction of 3G networks. Operators have already spent nearly $100 billion to acquire 3G licenses in 14 EU Member States (Figure 2-12).[88]

In countries which licensed 3G operators in early 2000, namely the United Kingdom, Germany, and Italy, operators were still convinced of huge profits to be made from 3G and paid an average of $441 per capita for the right to offer 3G services, compared to an average of $65 per capita in the 28 other countries around the world that have awarded 3G licenses.[89] Although a year later the price paid for licenses by operators in other countries had fallen substantially, many other operators also paid what now are considered excessive prices for licenses in western Europe.

Future returns on operators' investments in 3G licenses may not be nearly as large or as soon as previously expected. The rosy predictions of an exploding market for 3G, upon which operators based their decisions to acquire licenses, have disappeared as industry participants realize the monetary and technical limitations to launching 3G, while also beginning to question demand. By some accounts, 3G will produce less than $10 billion in incremental revenues for European operators in 2005.[90]

As a result of these conditions, industry representatives expect industry consolidation in the future.[91] EU Member States have

[88]European mobile operators invested not only in their own countries but also in neighboring European countries. For example, France Télécom purchased 3G licenses in nine EU Member States.

[89]"Searching for Enrons," *Business Week*, February 25, 2002.

[90]Ibid.

[91]European industry representatives, interviews by USDOC staff, Germany and France, Nov. 12-16, 2001.

encouraged 3G licensees to share certain infrastructure, facilitating a 30-40 percent decrease in the cost of 3G network buildout. It is unclear whether governments will be willing to ease up any further on license allocation conditions such as 3G network roll-out schedules. Nonetheless, operators in such countries as Sweden and the United Kingdom remain confident that roll-out will commence on schedule in 2002, as required under their licenses. It remains to be seen whether this will be possible. Vodafone has already announced plans to launch 3G services with slower than previously anticipated transmission speeds to simplify their network buildouts and save money. IDATE is skeptical whether all of the 3G networks planned in Germany and the United Kingdom (six and five, respectively) will actually be developed.

Observers blame various parties for creating a situation where many operators are so burdened by debt that their ability to build 3G networks is now called into question. Some industry observers have stated that the European Commission, eager to leverage Europe's competitive advantage in mobile communications to a comparative advantage in mobile Internet, pushed the Member States to grant licenses before the industry or market were ready. In spring 2002, the European Commission itself admitted that it had been too optimistic about 3G mobile phones and did not put enough emphasis on services to be offered. Other industry representatives fault Member State governments, who viewed national auctions as an opportunity to gain revenues at the expense of the industry's long-term health.[92]

[92]Ibid.

Dearth of 3G handsets

Another leading cause of 3G's delayed rollout is that most manufacturers underestimated the complexity of delivering 3G handset technologies. Current 3G handsets reportedly run at a fraction of the speed originally promoted by manufacturers, and although they are equipped with new services such as e-mail and digital cameras, their capabilities fall short of expectations raised by the media. In addition, operators still have not yet finalized their specifications for 3G handsets, leaving manufacturers with a "moving target."

Due to various technological glitches, new 3G handsets are more than a year behind schedule. In fact, Belgium recently announced that it was postponing its rollout of 3G services from September 2002 to September 2003, due to an expected unavailability of 3G handsets. According to *CIT Publications*, Nokia and Motorola were the only major manufacturers that had committed to delivering 3G handsets before the end of 2002.[93]

Most analysts expect that 3G phones' commercial launch will not occur on a large scale in western Europe until 2004 at the earliest. Until then, the launch of 3G services, undertaken due to license commitments, is likely to remain restricted to niche corporate clients and to those regions where GSM frequencies will soon be saturated.[94] Operators and manufacturers are fully committed to 3G technologies in western Europe, so the question is not

[93]"Trials and Tribulations for 3G Equipment Vendors," *Communications Update*, April 16, 2002.
[94]"The New Mobile Internet Scenarios."

whether 3G will be rolled out commercially, but rather when and how 3G wireless will fulfill its intended capabilities. 3G wireless is generally viewed in Europe as designed to offer broadband Internet access, but not video-on-demand.

Interim options: GPRS, i-mode, EDGE

Nonetheless, European operators and handset manufacturers remain optimistic about the prospects for wireless Internet due to the wild success in Japan of NTT DoCoMo's "i-mode" service, which already offers various multimedia services.[95] There are other, "interim" mobile data transmission technologies which are anticipated to serve the European market's needs in the absence of 3G, and in many cases are already doing so. These technologies are known as 2.5 generation (2.5G) because they achieve Internet access, but use transmission speeds substantially slower than 3G. These 2.5G technologies require upgrades to current 2G mobile (GSM) infrastructure and equipment, whereas 3G requires totally new base stations. The optimism of Gartner Dataquest for this market is demonstrated in a report it released in late September 2001, forecasting that the market for 2.5G terminal equipment in western Europe would expand five-fold in 2002.

GPRS

Currently, the 2.5G technology considered to have the most potential in western Europe is general packet radio service (GPRS). GPRS is popular with European mobile operators because it requires only a modest upgrade of their existing GSM networks, and it has two key advantages over WAP (which was market failure when offered over GSM).

First, GPRS offers packet-mode transmission. As a result, the tariff structure for GPRS is more cost-based than for WAP, because GPRS prices are based on data volume rather than time spent on the network, allowing the user to be "always on," similar to 3G wireless. This appeals particularly to business customers who seek to minimize their mobile costs. Second, GPRS can be four to five times faster than WAP. GSM networks typically run at 9.6 kbps, whereas the maximum throughput speeds of GPRS reach between 20 kbps and 45 kbps, according to *3G Americas*.[96] Nonetheless, GPRS still lacks the speed and quality required for full 3G communications.

Industry representatives report that many incumbents in western Europe have already upgraded their GSM networks to GPRS, and are offering their first services to the corporate market, although on a limited scale.[97] In April 2002, ECTA reported that the majority of mobile phones for sale in Europe were GPRS-enabled.[98] However, few customers reportedly are using GPRS for data transmission because of its relatively limited capacity. As mentioned above, GPRS uses the same frequency bands as GSM, which are already used for voice services and have little additional room for transmitting data via

[95] "Telecoms Firms Introduce Mobile Phones with Colour Screens," Economist Intelligence Unit, *The Economist*, March 12, 2002.

[96] "An Overview of 3G Americas," *3G Americas,* July 11, 2002.

[97] European industry representatives, interviews by USDOC staff, Germany and France, Nov. 12-16, 2001.

[98] "State of the European Telecommunications Market."

GPRS.[99] In addition, GPRS speeds are still relatively slow, and it reportedly does not work very well for large data or video files.

In short, in terms of data transmission, GPRS offers little improvement over the limited content and services of WAP. As a result, many operators are upgrading the voice capacity on their GPRS networks to try to make more money off of this more lucrative basic service.[100] They are also working on increasing the capacity of their GPRS networks generally to further differentiate them from second generation wireless networks (GSM).[101] Basic GPRS services such as news, games, gambling, and e-mail have begun to sell in the region, according to ECTA.[102]

Industry analysts expect that the focus for at least the rest of 2002 will remain on the commercial launch of GPRS over 2G networks, although there is some controversy about how widely GPRS will be mass marketed.[103] Many industry representatives interviewed in Europe observed that 2G operators with 3G licenses are unlikely to promote GPRS very much for fear that if GPRS solutions are relatively successful, 3G rollout may be delayed even longer in Europe than would otherwise have been the case. Because GPRS is compatible with existing GSM networks, users do not need to invest in new back office operation/business support systems, as they would need to do to use 3G. If GPRS can offer services similar to 3G (such as corporate access to intranets) at lower costs, customers may not see the need to pay more for the latter technology. On the other hand, some observers see GPRS as a test of the profitability of 3G investments.

i-mode

Like GPRS, i-mode is scheduled for roll-out in several EU Member States during 2002. However, as of June 2002, the only European operator that had announced i-mode deployment during 2002 is KPN of the Netherlands, which is part-owned by NTT/DoCoMo of Japan, the world leader in i-mode. KPN deployed i-mode in Germany in May 2002, and has plans to deploy it in the Netherlands and Belgium in 2002 as well. It is not evident whether i-mode will be as successful in Europe as it has been in Japan.[104]

EDGE

A final 2.5G technology, "enhanced data rates for GSM evolution" (EDGE), is also considered to be a strong possibility for 2.5G in western Europe. EDGE has an advantage in that it is recognized by the ITU as a migration path towards 3G, unlike GPRS or i-mode. In addition, EDGE is expected to deliver data transfer rates of between 80 and 180 kbps, even faster than other 2.5G technologies, according to *3G Americas*.[105] This could allow EDGE to support broadband applications as well as increased capacity for the transmission of voice communications.

[99] "The New Mobile Internet Scenarios."
[100] Ibid.
[101] European industry representatives, interviews by USDOC staff, Germany and France, Nov. 12-16, 2001.
[102] "The State of the European Telecommunications Market."
[103] European industry representatives, interviews by USDOC staff, Germany and France, Nov. 12-16, 2001.
[104] "The New Mobile Internet Scenarios."
[105] "An Overview of 3G Americas."

Despite its advantages, no operator has announced plans to deploy EDGE in western Europe, because it requires more expensive upgrades of terminals and switches than does GPRS and i-mode, and due to constraints of existing licenses. Furthermore, EDGE would be more competitive with 3G than GPRS and i-mode, competition that 3G license holders want to avoid.[106]

The key question: how to make money in mobile data services

The key question for the advancement of any generation of mobile data services in Europe, in addition to overcoming technological limitations, is how operators can maximize revenues from these services and thus justify the costs of acquiring licenses and building or upgrading networks.[107] Many European operators reportedly have been studying the pricing and revenue models of France Télécom's Minitel and NTT/DoCoMo's i-mode. In these systems, revenues are shared between operators and service/content providers.

Other trends: VoIP is being rolled out slowly

Voice over IP (VoIP), although not yet widely used in western Europe, is beginning to make some headway in the region. However, VoIP reportedly is still in the process of being launched by most well-established telecommunications operators.[108]

Convergence is not yet a reality

There is almost as much hype about convergence technologies in Europe as in the United States, but industry sources report that IT and telecommunications convergence is not yet happening on any large scale in western Europe, outside of the convergence of IT and telecommunications in the Internet.[109] One key reason has been the dearth of bandwidth in the region. Applications such as video-on-demand are not yet possible. Convergence is expected to proceed faster for mobile communications than for broadcasting-related technologies. Nevertheless, the preparations to expand broadband penetration over various platforms assures that convergence is approaching the mass market in western Europe.

Continuing efforts to push telecommunications reform

Despite the numerous changes in the past decade in western Europe's various telecommunications services markets (wireline and wireless, basic and value-added, broadband, etc), the European Commission remains unsatisfied with the pace of telecommunications change in the EU, particularly as the Internet becomes more important to Europe's economic growth. Consequently, in July 2000 the Commission put forth a package of legislation aiming at driving forward the harmonization and liberalization of the EU's telecommunications markets by adapting telecommunications regulations to the new realities and

[106]European industry representatives, interviews by USDOC staff, Germany and France, Nov. 12-16, 2001.
[107]Ibid.
[108]Ibid.
[109]European industry representatives, interviews by USDOC staff, Frankfurt and Paris, Nov. 12 and 15, 2001.

technologies of the "information society."[110]

The legislative package is designed to consolidate the 28 existing EU telecommunications laws into just seven. Thus, it represents a comprehensive reform of the regulatory framework for telecommunications in Europe. The package simplifies and updates the regulatory framework for telecommunications while extending it to all electronic communications, including the Internet. It puts particular emphasis on the stimulation of affordable high-speed Internet access and aims to provide a light-touch legal framework for market players in electronic communications. All but one of the seven laws (one regulation and six directives) were approved by the EU between 2000 and early 2002, and now must be implemented, in all EU Member States.

Text Box 2-4

New EU Regulatory Framework

1. Regulation on Unbundled Access to the Local Loop
2. Directive on a Common Regulatory Framework for Electronic Communications Networks and Services
3. Directive on Access to and Interconnection of Electronic Communications Networks and Facilities
4. Decision on a Regulatory Framework for Radio Spectrum Policy in the EC
5. Directive on Authorization (Licensing) of Electronic Communications Networks and Services
6. Directive on Universal Service and Users' Rights relating to Electronic Communications Networks and Services
7. Directive on the Processing of Personal Data and the Protection of Privacy in the Electronic Communications Sector

The first measure was approved on a fast track and went into force at the beginning of 2001. The others are intended to go into effect by May or June 2003. However, as of June 2002, a revised draft of the final measure, the Communications Data Protection Directive, was still pending approval by the Council of Ministers. It establishes special data protection rules for communications, supplementing the Data Protection Directive (described at the end of this chapter). It is intended to extend the Telecommunications Data Protection and Privacy Directive approved in 1997 to all "electronic communications," including the Internet. For example, privacy protection

[110]This process started in 1999, when in its "EU '99 Communications Review" the European Commission proposed an overhaul of its rules regarding electronic communications within the EU.

against unsolicited phone calls would be extended to e-mail and any other form of communication. This directive has been controversial, particularly after September 11, 2001, according to European industry representatives.[111] The draft expected to be approved by the Council of Ministers in June 2002 incorporates amendments approved by the European Parliament which modify some of the most controversial provisions of the directive in response to pressure from some EU governments that are eager to establish powers of data retention to fight terrorism.

These seven measures are expected to create a more simplified regulatory framework which will further stimulate western Europe's telecommunications markets. The new laws are designed to phase out regulations specific to the telecommunications sector once the market becomes competitive, making telecommunications regulation more like that in the IT industry. They also are designed to be "deregulatory" over time, focusing less on regulation and more on competition (anti-trust) policy as markets become more competitive.

Although many industry observers herald these changes, at the same time, others express concern that regulation of Europe's incumbent telecommunications operators should not disappear too soon.[112] To assure that the European Commission continues to play a role in the implementation of telecommunications regulations, the new framework establishes a European regulatory group for consultation between the Commission and Member States' regulatory authorities.

In any case, these changes have created the framework for the EU's communications policies for the next decade, which will in turn shape the growth of the region's telecommunications, Internet, and e-commerce markets.

E-COMMERCE

Trends in e-commerce use

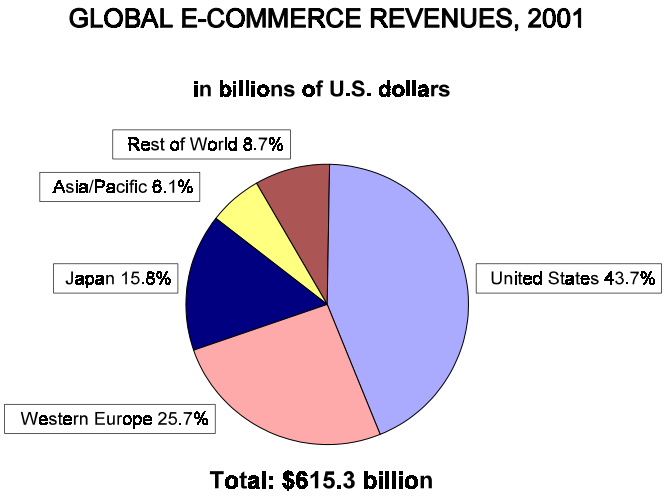
In 2001, western Europe surpassed Japan as the second largest source of e-commerce revenues globally after the United States. Nonetheless, the gap between e-commerce use in western Europe and the United States is quite wide. In 2001, western Europe accounted for 25.7 percent of worldwide e-commerce revenues, compared to the U.S. share of 43.7 percent, according to IDC (Figure 2-13).[113] This gap is predicted to narrow in coming years as e-commerce in western Europe grows rapidly. IDC predicts that western Europe's total e-commerce revenues will jump from $154 billion in 2001 to $1.5 trillion in 2005. Due in part to western Europe's growth, IDC predicts that in 2004 western Europe will command a 33 percent share of worldwide e-commerce revenues, at which point the United States will account for only 38 percent.

[111] European industry representatives, interviews by USDOC staff, Frankfurt and Paris, Nov. 12 and 15, 2001.

[112] Ibid.

[113] "Western Europe Pulls Ahead of United States," IDC eBusiness Trends, January 3, 2002. IDC's definition of e-commerce includes transactions conducted over the Internet, but for which payment may occur via other means.

Figure 2-13



Source: IDC E-business Trends, 2001

Both B2B and B2C e-commerce are expected to grow in the region, for various reasons detailed below. One common factor expected to propel the growth of both types of e-commerce is the adoption of the euro. E-commerce in western Europe long has been stymied by the difficulties of online merchants in achieving economies of scale in a region with so many different currencies. Merchants had to have multiple currencies and conversion capabilities on their websites to be able to serve much of the European market. This hindered many merchants from coming online, and also depressed cross-border online purchasing to some degree since many consumers did not want to deal with currency conversions. Use of the euro means that businesses and consumers in the 12 participating Member States will no longer have to worry about currency conversions, making online price comparisons much more transparent, similar to the situation in the United States.

M-commerce?

Many people believe that Europe's relatively high mobile phone penetration rate combined with its relatively low PC penetration rate mean that there will be much more emphasis in the region than in the United States for e-commerce via mobile devices (m-commerce). GSM phones currently can enable m-commerce by featuring plug-in "SIM" cards which enable secure transactions by storing a user's private key for access to the public key infrastructure.

This enthusiasm notwithstanding, industry observers point out that, as of yet, there are no "killer applications" on the horizon in Europe that will make m-commerce, whether for consumers or businesses, more than a niche technology and drive the necessary sales of mobile devices and services. Numerous industry representatives interviewed in Europe in November 2001 concurred that this is an area ripe in opportunities for U.S. companies with ideas or technologies for mobile applications to be used on various devices including mobile phones, personal digital assistants (PDAs), and laptops.[114]

B2B has great potential

As in the United States, the greatest potential for e-commerce in western Europe is in B2B, which already constitutes the bulk of the region's e-commerce use. The market research firm Gartner predicts that Europe's B2B revenues will grow from $500 billion in 2001 to $2.3 trillion in 2005, at which time B2B e-commerce will account

[114]European industry representatives, interviews by USDOC staff, Berlin, Hamburg, and Paris, Nov. 7-15, 2001.

for approximately 8 percent of European inter-business transactions.[115] Although large European multinational corporations (MNCs) are now quite advanced in their use of e-business technologies, many other European firms are not, and are eager to catch up with their U.S. counterparts.[116]

Like in many other areas of IT, the adoption of B2B e-commerce has occurred much more slowly in Europe than in the United States. Although many of the MNCs referenced above began investing in e-business solutions on a similar time frame to that of U.S. MNCs, most European companies that have invested in e-business started to do so later than their U.S. counterparts. Many e-business investments in Europe began to occur only in the late 1990s.

Fearful of being left behind and eager to catch up, some European firms rushed into e-commerce projects with little strategic planning. The main goal of many projects was simply to help give firms a more "progressive" image. Upper-level management reportedly was not very involved in these e-business projects, many of which failed.[117]

Now, after lessons were learned, B2B e-commerce has moved to the management agendas of most large European companies. In fact, a summer 2001 study by the consulting firm Accenture found that nearly two thirds of Europe's top managers viewed e-commerce as a key competitive advantage.[118] Further, as in the United States, European corporations are changing tack to develop more comprehensive e-business strategies which aim to integrate e-commerce solutions into their core business functions.

With this new focus, the western European market for e-business technologies is expected to experience considerable growth. Accenture predicted in its summer 2001 findings that European executives' expenditures on e-business technologies would increase by 15 percent over the coming year. It further reported that 80 percent of top-level managers in Europe planned to use e-commerce extensively by 2004, for purposes including marketing, sales, purchasing and procurement, and strengthening customer relations. Overall, Accenture reports that European firms are closing the gap with their U.S. counterparts in terms of e-business technology adoption. Gartner concurs, reporting that in January 2002, 18.5 percent of companies in Europe had adopted supplier enablement solutions and that this figure was going to rise to 73.6 percent by the end of 2003.[119]

Not surprisingly, SMEs' e-business use is low

Like their global counterparts, SMEs in Europe lag far behind large firms in using e-business technologies and processes. Although approximately 70 percent of western Europe's SMEs have Internet access (approximately 90 percent of those with more

[115]As cited in "B2B E-Commerce Sales to Skyrocket," *Electric News*, May 8, 2002.

[116]European industry representatives, interviews by USDOC staff, Berlin, Hamburg, and Paris, Nov. 7-15, 2001.

[117]Ibid.

[118]As cited in "European Companies Closing the E-Business Gap," eMarketer, May 8, 2002.

[119]As cited in "B2B E-Commerce Sales to Skyrocket."

than 10 employees), most use it only for basic functions such as e-mail and research, according to a February 2002 European Commission report.[120] About 60 percent have a website, used in most cases for online advertising. Less than one third of use the Internet as a business tool, namely to engage in e-commerce, due in part to costs and hurdles of engaging in cross-border trade. Nonetheless, in May 2002 the Yankee Group reported that the ability to sell products and services via a company web site has become a top priority for European SMEs.[121]

One fourth of SMEs in Europe use either cable modem or ADSL broadband Internet connections, according to the same Yankee Group report. For the remaining 75 percent of SMEs, the metered cost of dial-up Internet access reportedly discourages Internet use. Traditional, high-speed bandwidth solutions, such as leased lines, have been too expensive for European SMEs. The increasing availability of lower cost DSL will provide the European small business sector greater broadband access and thus is expected to lead to more sophisticated Internet and e-business use.

A more sober approach to investments

Many industry representatives believe that Europe's delay compared to the United States in implementing e-business solutions may in the long run benefit European companies. Industry representatives point out that European firms have been able to learn much from, and avoid some of the mistakes made by, their U.S. counterparts. Many U.S. firms made leaps of faith during the Internet bubble, investing in e-business projects based on new and unproven technologies, only to see these projects, technologies, and vendors fail. In contrast, industry representatives believe that European firms will in the long run be able to develop more robust, time-tested e-business models and make better planned investments, which in turn is hoped to provide a more stable technology market.[122]

Business use of mobile commerce?

Mobile communications devices, such as PDAs and smartphones, generally are used more by European businesses than their U.S. counterparts. For example, waiters at restaurants throughout the EU input orders into handheld devices. However, European firms' use of m-commerce is still very limited.

Nonetheless, large European firms, although keen to control costs in the mobile area, are increasing budgets for mobile devices.[123] Some people believe mobile e-business will grow rapidly in the region. Accenture predicts that European businesses will adopt e-commerce across various platforms, including mobile devices, reporting in its summer 2001 survey that nearly half of all European executives it surveyed plan to adopt mobile e-business initiatives within the next three years.[124] Despite the optimism, the

[120]"eEurope 2002: eEurope Benchmarking Report."

[121]"Europe's SMEs Finally Embracing the Internet, According to Recent Yankee Group Survey," Yankee Group press release, May 1, 2002.

[122]German and French industry representatives, interviews by USDOC staff, Berlin, Hamburg, and Paris, Nov. 7-15, 2001.

[123]European industry representative, interview by USDOC staff, Paris, Nov. 16, 2001.

[124]As cited in "European Companies Closing the E-Business Gap."

development of the m-commerce business market beyond niche uses will depend on the availability of "killer applications" that fill a need of, and make sense to, business managers.[125]

B2C is growing, yet faces many obstacles

Jupiter Research estimated that western Europe's 2001 B2C e-commerce revenues were $13.8 billion. A summer 2001 AOL Europe/Roper Starch Cyberstudy found that more than one third of online consumers in Germany, the United Kingdom, and France had come online in the previous year (20 percent in the previous six months alone), an indication of the speed of the uptake of B2C e-commerce in western Europe.[126]

Despite this growth, B2C e-commerce in western Europe remains limited compared to the United States, and is developing more slowly than had been predicted. Tackling the growth of consumer e-commerce has become a major focal point of the European Commission in its efforts to make the EU the world's most dynamic, knowledge-based economy by 2010.

Impediments to B2C include a fragmented market...

On the producer side, it is difficult to reach the economies of scale necessary to maintain a profitable B2C e-commerce business in western Europe due to the fragmented nature of the European market. Although small online retailers exist in each country, few single countries, with the exception of Germany, have large enough populations to support many B2C vendors. To be profitable, vendors usually need to target numerous European countries, requiring them to localize their websites for multiple languages, currencies (much less of an issue since the rollout of the euro), and "look and feel," as well as offer country-specific products and information, including customer support. Although local large, multi-country B2C online retailers in Europe have multiplied in the past few years, they face growing competition from some U.S. vendors. Amazon.com has very successful operations in Germany and France.

... and low home Internet use

On the consumer side, western Europe's home Internet penetration rate on the whole is lower than that of the United States– 38 percent in December 2001, according to the European Commission, compared to slightly more than 60 percent in the United States, according to Gartner (Figure 2-14).[127] The

[125]European industry representative, interview by USDOC staff, Paris, Nov. 16, 2001.

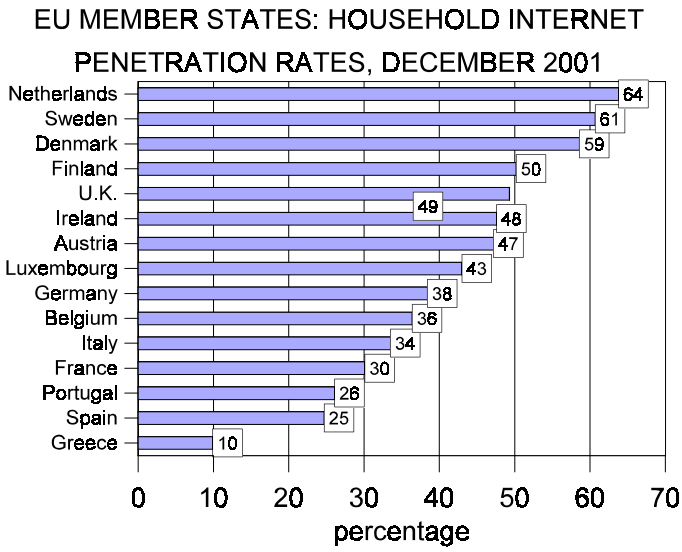
[126]"First AOL Europe/Roper Starch Cyberstudy Shows Explosive Growth in European Internet and E-Commerce," AOL Press Release, May 10, 2001.

[127]"eEurope 2002: eEurope Benchmarking Report." Taken individually, eight of the 15 EU countries actually have higher home Internet penetration rates than the United States (Sweden leads, with 64 percent of its households online), according to a recent report by the European Commission. Further, some European countries, particularly those in Scandinavia, show greater sophistication than the United States in e-commerce use. However, the mass markets for Internet use and B2C e-commerce are those countries with the largest populations—Germany, the United Kingdom, and France—and these countries' home Internet penetration rates are lower than that of the United States.

limited figure is due in part to Europe's low home PC penetration rate.

Another reason is cost. A February 2002 report by the European Commission found that Internet access costs remain significantly higher in the EU than the United States.[128] Metered local phone calls in Europe have been a key factor contributing to cost and dampening European consumers' enthusiasm for shopping online, since for dial-up Internet users, every minute browsing e-commerce sites adds to the user's phone bill. Despite attempts by ISPs and telecommunications providers in some European countries to introduce unmetered dial-up Internet access plans, most campaigns have not been cost-effective and have been discontinued. The exception is AOL/TW, which continues to offer this service in some countries, notably in the United Kingdom, France, and Germany. One reason these campaigns have not been cost-effective for competitive service providers has been the high interconnection rates charged by most incumbent telecommunications operators.

Figure 2-14



Source: European Commission, December 2001

Unmetered phone calls seem unlikely to be introduced any time soon in most of Europe. Nonetheless, industry sources note that as the telecommunications markets have become more competitive, local phone prices have begun to decrease in many countries, and Europeans are now surfing the Internet for longer periods of time. However, recent statistics indicate that, ultimately, Europe's household Internet penetration rate could peak well below the U.S. level; the European Commission reported that the EU household Internet penetration rate doubled from 18 percent in March 2000 to 36 percent in June 2001, but then only rose marginally to 38 percent by December 2001.[129]

Although industry observers point out that broadband Internet access has a flat fee, and thus consumers using it do not have to worry

[128]Ibid.

[129]Ibid.

about their costs-per-minute, home broadband penetration in Europe is currently quite low. Gartner G2 reported in February 2002 that broadband penetration in EU households was only 2 to 3 percent, compared with 13 percent in the United States.[130] Gartner further reported that because of the high cost of broadband in the region– €45-60/month ($40-$53)– just 10 percent of the households in Germany, the United Kingdom, and France (western Europe's largest markets) will have broadband by 2005. Overall, Jupiter Media Metrix predicts that 15 percent of households in western Europe will be using broadband by 2006.[131] Gartner believes that to achieve widespread broadband adoption in Europe, prices need to fall to less than €30 ($26) per month.[132]

Other factors

Credit cards are not used widely in the region, so the online payment method most common in the United States does not seem to be a viable option there. In contrast, most Europeans use smart cards for their non-cash purchases, but few successful online payment methods incorporating smart cards have gained widespread acceptance there.[133]

Low consumer confidence is also an issue. In many European countries, particularly Germany and France, cultural attitudes toward the protection of personally identifiable data mean that consumers are less apt than their U.S. counterparts to feel comfortable giving their personal information to online merchants. High delivery costs of ordered goods are a further hindrance.

Finally, B2C e-commerce in Europe has been hampered by the economic slowdown. European consumers, concerned about job security, have become generally more cautious in their spending. As economic growth in Europe rebounds and accelerates in the coming years, this caution may disappear.

KEY EU INITIATIVES

Government interests in promoting IT, telecommunications, the Internet, and e-commerce

Although many advances in adoption of IT, the Internet, and e-commerce in western Europe have been market-driven, governments have also taken notable roles in helping promote and diffuse leading-edge technologies throughout the region. Governments at both the EU and national levels view adoption of the Internet and e-commerce as important for economic growth, and are developing or implementing programs to help firms, schools, government agencies, and citizens increase their IT investments and use of the Internet and e-commerce. For example, the government of Ireland has been extremely active in this regard. Some specific actions being taken by the governments of Germany and France are described in Chapters 3 and 4, respectively.

[130]"Gartner G2 Says Europe's Broadband Revolution is Still a Dream," Gartner Press Release, February 4, 2002.

[131]As cited in "Applications May Lead Europeans to Broadband," *CyberAtlas*, January 9, 2002.

[132]"Gartner G2 Says Europe's Broadband Revolution is Still a Dream."

[133]Using smart cards for PC-based e-commerce requires a terminal attached to the PC, and the user must provide bank account information.

Particularly at the EU level

In particular, the EU has undertaken a broad range of policy initiatives and programs related to the development, regulation, and deployment of the Internet and e-commerce within the region. The EU has in recent years repeated its oft-stated goal of making western Europe the world's most competitive economy via its transformation into an "information society" and to catch up to or surpass the United States, as well as Japan, in telecommunications, IT, Internet, and e-commerce use.

Emblematic of its commitment to this goal, the EU has a Directorate-General (DG)[134] for the Information Society. This DG is in charge of supporting, promoting, and orienting Europe's private- and public-sector actions in the field of the "information society." Since September 1999, this DG's Commissioner (head) has been Erkki Liikanen, originally from Finland and a past member of the Finnish government. Many observers note that Liikanen's background from one of the most technology-savvy countries in Europe has been a key reason for the Commission's strong push during the past few years to promote "information society" policies and initiatives.[135] Liikanen has stated that his "main priority is to foster an entrepreneurial and innovative Europe based on an inclusive "information society." In fact, Liikanen has been credited with spearheading the *eEurope* initiative described below.

Some of the EU's main initiatives shaping its development of an "information society" include the *eEurope* initiative, certain EU directives, and regulations (see Text Box 2-5).[136] The EU's intention in developing such legislation is to create a harmonized regulatory framework throughout the EU that will support the rapid development of e-commerce throughout the region.[137]

Text Box 2-5

SOME KEY EU INITIATIVES

- **E-Commerce Directive**
- **Electronic Signatures Directive**
- **Distance Selling Directive**
- **eEurope**
- **Dual-Use Regulation**
- **Resolution on Network and Information Security**
- **Promoting IPv6**

This section highlights the most important developments and focuses on some regulations that may go into effect in the future. These and other efforts are expected to be a driving force for increasing technology investments in the region– and thus result in numerous market opportunities for U.S. SMEs. However, at the same time, some of them also could make doing business in

[134]EU Directorate-Generals could be considered the European equivalents of U.S. Government cabinet agencies, and DG Commissioners the equivalent of U.S. cabinet secretaries.

[135]European industry representatives, interviews by USDOC staff, Germany and France, Nov. 7-16, 2001.

[136]The polices and regulations discussed here are not exhaustive, and new ones appear regularly. Other influential directives are those related to telecommunications liberalization and competition, described earlier in this chapter.

[137]The EU also has directives mandating compliance to certain technical standards for IT and telecommunications products intended to be connected with telecommunications networks (both wireline and radio equipment). These directives, about which U.S. hardware suppliers selling into the EU must be aware, are discussed in Chapter 5.

Europe more complex, since some laws and policies are in a state of change.

eEurope[138]

In December 1999, the EU determined that Europe needed to focus on specific objectives with a sense of urgency to catch up in the "information society" (namely, to catch up to the United States). At that time, the EU recognized that attaining this goal strongly depended on making the best possible use of information and communication technologies, notably the Internet and e-commerce. To this end, it launched *eEurope*, a political initiative to accelerate Europe's movement into the digital age and ensure that all Europeans– all Member States, regions, and citizens– benefit fully from the "information society."

The key objectives of *eEurope* are bringing every EU citizen, home, school, and business into the digital age and online, creating a digitally literate Europe, and stimulating the use of the Internet throughout the region. The *eEurope* initiative was officially adopted at an EU summit in Lisbon, Portugal, in March 2000, where the EU set a new strategic goal for western Europe "to become the world's most dynamic and competitive knowledge-based economy" within the coming decade.

Refining eEurope's objectives in 2000...

In June 2000, the EU refined its objectives in an *Europe 2002 Action Plan* which listed specific measures necessary to ensure that *eEurope*'s goals were met by the end of 2002.

The three main *eEurope 2002* objectives were:

< deploying a faster, cheaper, and more secure Internet throughout the region;
< increasing digital literacy among all EU citizens; and
< stimulating the use of the Internet throughout the region by taking four steps: accelerating e-commerce; increasing electronic access to public services, including government and health; promoting European digital content, and investing in high-speed infrastructure throughout the EU.[139]

Further, the EU determined that *eEurope* targets could be achieved by accelerating the establishment of an appropriate legal environment, supporting new infrastructure services throughout the EU, and coordinating government activities and benchmarking. The EU stated in its action plan that *eEurope* could only succeed if Member States, in addition to the EU, set new priorities, and it strongly encouraged them to do so.

... and again in 2002: the eEurope 2005 Action Plan

In February 2002, the EU and leading European experts from industry discussed the next challenges for Europe in the field of the "information society" and examined the

[138]For complete information on *eEurope* see http://www.europa.eu.int/information_society/eeurope/index_en.htm.

[139]For complete information on specific recommendations or measures under each action plan, see "eEurope 2002: An Information Society for All Action Plan," prepared by the Council and the European Commission for the Feira European Council, June 14, 2000, at http://www.europa.eu.int/information_society/eeurope/action_plan/pdf/actionplan_en.pdf

impact of the *eEurope 2002 Action Plan.*[140] The consensus was that although important achievements had been made as a result of *eEurope 2002*, notably a significant increase in Internet access in the EU,[141] much remained to be done. In short, all objectives could not be met by 2002.

As a result, Spain, which held the presidency of the EU for the first six months of 2002,[142] proposed to extend *eEurope* until 2005. The *eEurope 2005 Action Plan* has the following five core priorities.

eEurope 2005's five key provisions

< Promoting broadband Internet through various technologies, including DSL, cable modem, satellites, third-generation mobiles, fiber optic, and fixed wireless access;
< Promoting attractive content, services, and applications for all Europeans, localized to reflect Europe's diversity of cultures and languages;
< Greater provision of public (including government and health) services online;
< Pursuing digital inclusiveness for all Europeans, including education (fitting all schools with sufficient numbers of modern computers and broadband connections, and integrating technology into learning processes), training (including distance-learning), social (in addition to public Internet access points and cybercafés, the promotion of alternative access terminals including digital TV and mobile terminals), individual (accessibility to electronic services for the disabled and the elderly), and geographical (all regions and cities must have access to a state-of-the-art communications infrastructure); and
< Ensuring trust and confidence in cyberspace.

New emphasis on competition among all broadband platforms

What is considered to be one of the most important, and potentially far-reaching, changes in the EU's priorities for coming years is the promotion of broad band Internet through a variety of technologies. This is a shift from the EU's former emphasis on promoting broadband via 3G communications, which the EU has realized will be much later in coming than originally expected, and local loop unbundling, to promoting competition among all potential broadband Internet access technologies.

E-Commerce Directive[143]

The E-Commerce Directive, adopted by the EU in June 2000, and with an implementation deadline of January 2002, has been heralded

[140]See *Informal Meeting of Ministers for Telecommunications and the Information Society Results*, EU Spanish Presidency Document, Vitoria Spain, February 22-23, 2002.

[141]Other achievements stated by Erkki Liikanen were 1) an accelerated decision-making process in key areas including telecommunications and e-commerce regulation, pan-European research networks, and information and network security, 2) a more accurate vision of the progress achieved at EU and national level on the basis of benchmark indicators, and 3) the placement of the Internet at the top of the political agenda in all EU countries.

[142]Presidency of the EU rotates among EU Member States every six months. Denmark and Greece hold the next two presidencies after Spain, the second half of 2002 and the first half of 2003, respectively.

[143]Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of "information society" services, in particular electronic commerce, in the Internal Market.

as a major piece of legislation to help encourage the development of e-commerce in the region. The EU developed this directive in response to the belief that existing legal uncertainties in the region regarding online transactions, and divergent Member State approaches regarding the regulation of online services, were retarding e-commerce growth in the region, particularly across borders.

To address these concerns, the E-Commerce Directive aims to create a comprehensive legal framework for the conduct of e-commerce within the EU. Its overarching goal is to ensure that "information society" services benefit from the EU's Single Market principles of free movement of services and freedom of establishment,[144] and can be provided throughout the EU if they comply with laws in their home Member State. At the same time, the directive is designed to provide a high degree of consumer protection and thus encourage European consumers to increase their use of e-commerce.

To these ends, the main provisions of the E-Commerce Directive are as follows. The directive:

< defines the place of establishment as the place where an operator actually pursues an economic activity through a fixed establishment, irrespective of where web sites or servers are situated;

< sets out requirements for service providers to provide information about their data processing methods to their customers, as well as requirements for the conclusion and validity of online contracts;

< establishes that the principle of mutual recognition for national laws and the principal of national origin must apply to online services;

< defines the extent to which online service providers can be held liable for unlawful information or activities they store or in which they engage; and

< establishes an exemption from liability for intermediaries where they play a passive role as a "mere conduit" of information from third parties and limits service providers' liability for other "intermediary activities" such as the storage of information.[145]

The directive also seeks to strengthen mechanisms to ensure that existing EU and national legislation is enforced regarding online transactions. This includes encouraging the development of codes of conduct at the EU level, stimulating administrative cooperation between Member States, and facilitating the establishment of effective, alternative cross-border online dispute settlement systems. The directive requires Member States to provide for fast, efficient legal redress appropriate to the online environment, and to ensure that sanctions for violations of the rules established under the directive are effective, proportionate, and dissuasive.

[144] Meaning that EU-based companies can provide services anywhere within the EU, and there is unrestricted mobility of capital and labor.

[145] Examples of sectors and activities covered include online newspapers, online databases, online financial services, online professional services (such as legal, medical, and accounting services), online entertainment services such as video-on-demand, online direct marketing and advertising, and services providing access to the web. The directive applies only to service providers established within the EU, not those established outside its borders.

Delays in implementing the E-Commerce Directive

Despite high expectations throughout the region regarding the E-Commerce Directive, in reality, its much-heralded changes could be longer than expected in coming. Only five EU countries (Austria, Finland, Germany, Ireland, and Luxembourg) met the EU's January 17, 2002, deadline for transposing the directive into national laws. As of September 2002 the implementation timetable was unknown for the other remaining Member States, namely Belgium, Denmark, France, Greece, Italy, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom. The U.K. government reported that it had delayed the directive's implementation "because of the need for further consultation on the legal framework of the directive's requirements" and that the directive was too important to rush.

A delay by EU countries in implementing this directive could potentially slow the development of e-commerce in the region, by leaving in place an uneven and uncertain regulatory environment, and thus discouraging the provision and consumption of online services. Some observers believe that a long delay could cause the Commission to take legal action against Member States failing to implement the directive.[146]

Electronic Signatures Directive

This directive, adopted by the EU in December 1999, with an implementation deadline of July 2001, created a new legal framework guaranteeing EU-wide recognition of electronic signatures. The directive aims to facilitate the use of electronic signatures and to contribute to their legal recognition. It defines requirements irrespective of the technology used. It was designed to build consumer trust as well as stimulate operators to develop secure systems and signatures without restrictive and inflexible regulation. Because this directive is relatively new, industry sources report that electronic signatures are not yet used widely in Europe.[147]

Distance Selling Directive

The Distance Selling Directive, adopted by the EU in 1997, with an implementation deadline of June 2000, aimed to harmonize laws, regulations, and administrative provisions of the Member States on contracts negotiated at a distance between suppliers and consumers. The directive helped facilitate cross-border sales within the EU by creating a comprehensive legal framework for all forms of "distance selling," including via the Internet.

Dual-Use Regulation[148]

EU-wide availability of security products will increase users' trust in online communications and transactions. The Dual-Use Regulation, directly effective in all Member States from September 2000, authorizes the trade in most encryption products and services between Member States, and exports from the EU to ten designated countries, including the United

[146]European industry representatives, interviews by USDOC staff, Germany and France, Nov. 7-16, 2001.

[147]Ibid.

[148]Regulation 1334/2000 setting up a Community regime for the control of strategic trade in dual-use items and technology.

States. Under this regulation, companies no longer need a license for intra-EU cross-border shipments of encryption technology (although reporting requirements may exist in some Member States).

Resolution on Network and Information Security[149]

Concerns in the region, real and perceived, about Internet security are frequently cited as a major roadblock to greater Internet and e-commerce use. The Commission is studying a series of measures for 2002 to help increase the public's confidence in the Internet and online transactions. A European Council resolution from early 2002 proposed a set of measures to be carried out, including increasing awareness of security, establishing a cyber-security task force and fostering national Computer Emergency Response Teams (CERTs) and their coordination at European and international levels.[150]

The Commission is promoting R&D in IPv6

The European Commission also is trying to promote a stronger role for Europe in developing and mastering the basic technologies that support the next generation of the Internet, namely IP version 6 (IPv6).[151] The Commission views widespread deployment within the EU of IPv6 critical to the next generation of wireless services. As a result, much of its push stems from a desire not to fall too far behind other countries including Japan, widely seen as the current leader in IPv6 development.

To these ends, the Commission has recommended that Member States increase and refocus their support to encourage the testing of IPv6 services and applications across wireline and wireless networks as well as the development of IPv6 equipment and services. To date, the European Commission has funded two IPv6 trials in an attempt to achieve its goals.

EU funding to encourage technology uptake

The EU expects the private sector to fund much of the investment in infrastructure and other technologies in Europe as the region moves towards an "information society." This expectation notwithstanding, the EU provides funding for some of these initiatives, underscoring its commitment to their progress and success (see Text Box 2-6).[152]

[149]Council Resolution of 15 January 2002 on Network and Information Security.

[150]The CERT Coordination Center (CERT/CC) is located at the Software Engineering Institute (SEI), a federally funded research and development center at Carnegie Mellon University in Pittsburgh, Pennsylvania. CERT aims to increase awareness of security issues and help organizations improve the security of their systems. CERT analyzes Internet security vulnerabilities, responds to computer security incidents, publishes security alerts, researches long-term changes in networked systems, and develops information and training to help businesses and home users improve their computer and network security. See http://www.cert.org.

[151]"Europe Set for Next Step Towards IPv6," *Communications Week International*, March 4, 2002.

[152]Generally speaking, since its inception the EU has provided financial support for two kinds of objectives: 1) economic development within its borders, particularly for underdeveloped regions, to help member states meet EU thresholds, and 2) R&D in critical sectors.

Text Box 2-6

EU FUNDING TO PROMOTE THE INFORMATION SOCIETY

- **European Investment Bank**
- **GoDigital Initiative (for SMEs)**
- **Structural and Cohesion Funds**

When adopting its *eEurope* initiative in March 2000, the EU also announced new funding to help support *eEurope*'s goals. Under the Innovation 2000 Initiative ("i2i"), the European Investment Bank (EIB)[153] would target lending of €12 billion to €15 billion ($10.6 billion to $13.2 billion) to five key objectives aimed to push the development of a knowledge-based economy and accelerate the take-up of information and communications technologies in the region.[154]

Specifically, EIB lending from 2000 through 2003 will focus on 1) venture capital to encourage innovative SMEs, 2) supporting investments in hardware, software, networks, and online services by government agencies, the health sector, and the private sector, 3) R&D in new technologies, 4) supporting public and private sector initiatives to develop trans-European networks (in particular, fiber optic networks, with an emphasis on broadband and multimedia infrastructure, as well as wireless local loop and DSL projects) for transferring data between businesses and individuals and establishing local infrastructure linking into these networks,[155] and 5) computerizing schools, training teachers in new technologies, and establishing centers to train IT and communications specialists throughout Europe to help bridge the skills gap.

Also part of *eEurope* is the European Commission's 2001 "Helping SMEs Go Digital" initiative, described earlier. Under Go Digital, the EU and Member State governments are providing SMEs with €1.4 billion ($1.2 billion) in financial support for investments in hardware, software, training, and introduction of Internet and e-business practices.[156]

Another source of funding for many IT- and telecommunications-related projects are Structural and Cohesion Funds (though not specifically earmarked as such by the EU). These are non-reimbursable grants the EU gives to projects intended to boost the economic development of underdeveloped regions throughout the region.[157] During the period 2000-2006, the EU plans to provide grants totaling €213 billion ($187.4 billion), most assistance going to such regions in (by order of magnitude) Spain, eastern Germany, Greece, Portugal, Ireland, southern Italy,

[153]The European Investment Bank is the EU's long-term financing institution. It is an autonomous body set up to finance capital investment furthering European integration by supporting EU policies. See http://www.eib.org.

[154]See http://www.eib.org/pub/divers/i2i_en.pdf.

[155]From 1995-1999 the EIB funded €42 billion ($37 billion) for projects of this type throughout the EU, including €11 billion ($9.7 billion) for telecommunications projects alone.

[156]"*eEurope* Go Digital."

[157]Structural Fund grants are given to national, regional, and local authorities for, among others, infrastructure and industrial projects in such sectors as telecommunications, energy, and power. Cohesion Funds cover only environment and transport projects. Most Structural and Cohesion Fund projects are assessed and/or approved by relevant local and regional authorities, but performed by the private sector.

Finland, Sweden, and the United Kingdom Although governments decide how to spend their EU funds, projects in IT and telecommunications are expected to obtain high funding priority from many European governments that want increased investment in, and use of, these technologies by their businesses and citizens.[158] For example, Ireland has leveraged some of its EU funding to develop a program to help Irish SMEs invest in e-commerce technologies.

Some EU directives may make the market more difficult for U.S. firms

Although many EU policies and actions are expected to propel the use of the Internet and e-commerce in the region, and streamline related regulations, some EU initiatives could prove problematic or cumbersome for U.S. IT and telecommunications firms doing business in the region (Text Box 2-7).

Text Box 2-7

EU DIRECTIVES THAT MAY PROVE PROBLEMATIC FOR U.S. FIRMS

< Data Protection Directive (in force)
< Directive on Value-Added Tax on Online Sales (2003)

Data Protection Directive[159]

While the United States and the EU share the goal of enhancing privacy protection for their citizens, the United States takes a different approach to privacy from that taken by the EU. The United States uses a sectoral approach towards privacy that relies on a mix of legislation, regulation, and self-regulation, coupled with the enforcement authority of government agencies such as the U.S. Federal Trade Commission for online privacy.

In contrast, European laws are based on ideas that rely primarily on governments to limit the use of personally identifiable information. The EU's approach to privacy grows out of Europe's history and legal traditions, where protection of information privacy is viewed as a fundamental human right and where there has been a tradition of prospective, comprehensive lawmaking that seeks to guard against future harms, particularly where social issues are concerned. As a result, most privacy laws in Europe are comprehensive, applying to every industry, and closely regulating what data are collected and how they are used. The notable exception is the telecommunications sector, which is subject to the industry-specific Telecommunications Data Protection Directive (see the end of the Telecommunications section of this chapter).

The EU Data Protection Directive, which went into effect in October 1998, is the principal cross-sectoral EU directive regulating privacy. The directive seeks to

[158]Examples of IT and telecommunications projects which received EU funding in the past are technology promotion (Spain), telecommunications networks (Greece and Italy), and telecommunications services (Ireland and Portugal).

[159]For more information about the directive, see http://europa.eu.int/comm/internal_market/en/dataprot/law/index.htm or see section 1 of the U.S. Department of Commerce's Safe Harbor Workbook at http://www.export.gov/safeharbor.

secure personal data via a comprehensive set of rules enforced by independent national data protection authorities. Consistent with European tradition, the directive takes a regulatory and comprehensive approach to privacy issues. It has two basic objectives: 1) to protect individuals with respect to the "processing" of personal information, and 2) to ensure the free movement of personal information within the EU through the coordination of national laws.[160]

Most importantly from the U.S. perspective, the directive requires that Member States enact laws prohibiting the transfer of personal data to countries outside the EU that fail to ensure an "adequate level of [privacy] protection" (as determined by the European Commission). For any country where the level of protection is deemed inadequate, Member States are required to take measures to prevent any transfer of data to the third country. Organizations outside the EU wishing to receive personally identifiable information from any EU country must provide "adequate" privacy protection.[161]

The directive could have significantly hampered the ability of U.S. companies to engage in many trans-Atlantic transactions. To bridge the difference between the privacy approaches of the EU and the United States and to provide a streamlined means for U.S. organizations to satisfy the "adequacy" requirement of the directive, the U.S. Department of Commerce, in consultation with the European Commission, has developed a "Safe Harbor" framework. Safe Harbor, approved by the EU in July 2000, is a way for U.S. firms to avoid experiencing

[160]Personal information is defined as information relating to an identified or identifiable natural person. An identifiable person is one who can be identified, directly or indirectly, in particular by reference to an identification number or to one or more factors specific to his physical, physiological, mental, economic, cultural or social identity. The scope of the directive is very broad, applying to all processing of data, online and offline, manual as well as automatic, and all organizations holding personal data. It excludes from its reach only data used "in the course of purely personal or household activity." The directive establishes strict guidelines for the processing of personal information. "Processing" includes any operations involving personal information, except perhaps its mere transmission. For example, copying information or putting it in a file is viewed as "processing."

[161]There are exceptions to the directive's adequacy requirement, which include the individual giving his/her unambiguous consent to the transfer or the transfer being necessary for the performance of a contract. Transfers can take place if data exporters are satisfied that "adequate safeguards" are in place even if the transfer is made to a third country without an overarching adequacy finding. To facilitate this, the European Commission developed draft model contract clauses in January 2001 that could be included in contracts (between data importers and exporters) and which would be automatically accepted as providing adequate protection by all Member States' Data Protection Authorities. The European Commission provides further information on this subject at: http://www.europa.eu.int/comm/internal_market/en/dataprot/modelcontracts/index.htm
U.S. government concerns with the draft model contract clauses are described in a joint Commerce/Treasury letter and DOC staff comments that are available at: http://www.export.gov/safeharbor. Many businesses argue that the model contract provisions in their current form are too burdensome. A coalition led by the International Chamber of Commerce submitted an alternative set of clauses in September 2001, which are currently under review. A key issue underlying the standard contract clause debate is that the model clause decision could create a higher benchmark standard for data protection adequacy.

interruptions in many kinds of data flows from the EU or facing prosecution by European authorities under European privacy laws. Online data flows are subject to Safe Harbor, but the following services are not currently eligible for Safe Harbor: telecommunications common carrier operations, banking, insurance, credit union activities, and not-for-profit activities. Certifying to the Safe Harbor will assure that EU organizations know that a U.S. company provides "adequate" privacy protection, as defined by the directive. U.S. organizations wishing to receive personal information from European organizations legally must either join the Safe Harbor, satisfy one of the directive's other exceptions, or seek an adequacy determination.[162]

As of September 2002, not all Member States had fully implemented the Data Protection Directive. The European Commission will conduct a review of Member State implementation of the directive in the fall of 2002.

Pending directives

The above-mentioned directives have been approved and are in effect.[163] A directive on a value-added tax for digital trade has not yet gone into effect, but is one about which U.S. firms should be cognizant due to its future impact. Some additional pending directives that will affect the development of the Internet and e-commerce in Europe are highlighted at the end of the telecommunications section of this chapter.

Directive on Value-Added Tax on online sales

In June 2002, the EU approved a new directive to apply the EU's value-added-tax (VAT) to digitally delivered products purchased by EU consumers from non-EU companies.[164] The directive will require non-EU vendors to register with an EU country and collect and remit an EU VAT on any sales of digitally delivered products to EU consumers.[165] The VAT would be charged at one of the 15 VAT rates found in the Member States, determined by the customer's country of residence.[166] This directive will apply to

[162]For further information about Safe Harbor, see http://www.export.gov/safeharbor.

[163]Although, as discussed above, in reality not all Member States may have met certain directives' implementation deadlines for transposing the directives into national law.

[164]This directive would cover the sale of digital products only to consumers. EU-based business customers of digitally delivered products will continue to account for VAT at their local rates. See http://europa.eu.int/comm/taxation_customs/taxation/ecommerce/council%20directive.pdf.

[165]VAT remittances are to be made to the vendor's country of registration, for distribution by that country to the other EU members based on the value of sales made to their residents.

[166]Critics point out potential problems with this directive. The collection of a tax on downloaded products raises significant administrative and policy issues, such as the limitations of available technological solutions and the implications for consumer privacy. U.S. critics state further that there appears to be at the moment no effective mechanism for determining online customers' residences to determine the appropriate VAT rate, other than relying on customer self-declarations. Further, U.S. vendors might potentially have to charge a higher VAT rate than their EU competitors for the same product, resulting in a price disadvantage. For example, if a U.S. firm sells a digitally delivered product to a Swedish consumer, the U.S. company would charge a 25 percent VAT (the Swedish rate), while a U.K. company selling to the same Swedish consumer would charge only 17.5 percent (the U.K. rate). The U.S.

products such as computer software and music delivered online; digitally delivered books, newspapers, and magazines; and subscription-based radio, TV broadcasting, and pay-per-view TV. This regulatory regime will apply across the EU as of July 1, 2003.

government has signaled opposition to this directive, and Administration officials have concerns about the consistency of the EU directive with its international obligations in the WTO. The EU claims that the VAT is consistent with OECD rules.

CHAPTER 3: GERMANY

GERMANY 2001		
Population and GDP	Total Population	82.9 million
	GDP per Capita	$27,100
IT Market	IT Services	$27 billion
	IT Hardware and Software	$37.2 billion
Personal Computers	Total	29 million
	Penetration Rate (Per 100 Inhabitants)	35%
Telecommunications Market	Telecommunications Services	$42.9 billion
	Telecommunications Equipment	$10.5 billion
Wireline Subscribers	Total	52 million
	Penetration Rate (Per 100 Inhabitants)	63%
Wireless Subscribers	Total	56 million
	Penetration Rate (Per 100 Inhabitants)	69%
Telecommunications Investment	Per Capita	$692
Cable TV	Total Subscribers	22 million
	Penetration Rate (Per 100 Inhabitants)	26.8%
Internet	Total Users	33 million
	Penetration Rate (Per 100 Inhabitants)	40%
E-Commerce	Total B2B and B2C	$39.5 billion

Sources: Statisches Bundesamt-Wiesbaden, U.S. Department of Commerce, IDC's April 2002 Black Book, EITO 2002, Reed Electronics Research, Kagan World Media, German Cable Operators' Association

ECONOMIC AND POLITICAL SNAPSHOT

The German economy is the world's third largest and accounts for about one third of western Europe's GDP. Germany is the United States' fifth largest global, and largest European, trading partner. After sluggish GDP growth throughout the 1990s (1.5 percent on average), Germany's GDP grew three percent in 2000. However, the German economy slowed again in 2001, growing only 0.6 percent, according to the European Commission's spring 2002 economic forecast. This slowdown was caused in part by the economic downturn in the United States, one of Germany's most important export markets. Germany also has

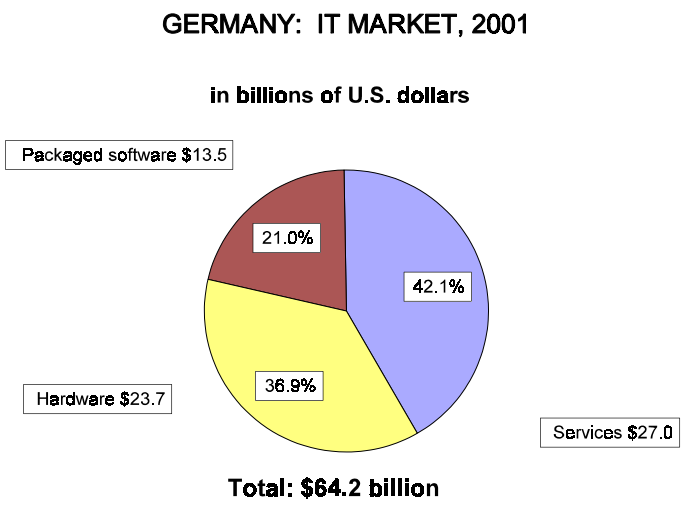
been weathering the long economic slump in Japan, another of its key export markets. The European Commission predicts that the German economy will have a continued slow growth rate throughout 2002, remaining at less than one percent. However, it expects the German economy to pick up steam in 2003, expanding 2.7 percent, helped in part by the anticipated rebound in the U.S. economy.[167]

Germany has a "social market" economy that largely follows free-market principles, but has extensive government regulation and generous social welfare protections. Germany is a federal republic that unites 16 state governments, which creates a relatively decentralized governing system, similar to that in the United States. The current government of Germany, headed by Chancellor Gerhard Schroeder, is a coalition of the Social Democratic Party and the Green Party. Because parliamentary elections are scheduled for September 2002, few major changes or decisions related to government policies are expected to be made before then.[168]

INFORMATION TECHNOLOGY
Single largest IT market in the region

Germany has the single largest IT market in western Europe, and the third largest in the world, after the United States and Japan. Germany's IT market– including computer hardware, packaged software, and IT services– was valued at $64.2 billion in 2001, representing approximately 24 percent of the total western European IT market, according to IDC's April 2002 Black Book.[169] IT services comprised the largest IT market segment in Germany, valued at $27.0 billion. Computer hardware, including local-area- and wide-area-networking (LAN and WAN) equipment, was valued at $23.7 billion. The packaged software market was valued at $13.5 billion (Figure 3-1).

Figure 3-1



Source: IDC April 2002 Black Book

Despite the current economic slowdown, IDC predicts Germany's IT market will grow at a compound annual growth rate (CAGR) of 9.4 percent from 2002 through 2006 to reach $96.2 billion. The packaged software market will grow the most rapidly (at a CAGR of 16 percent), reaching $27.5 billion and overtaking the hardware segment as the second largest IT market segment in the country. IT services will grow at a CAGR of

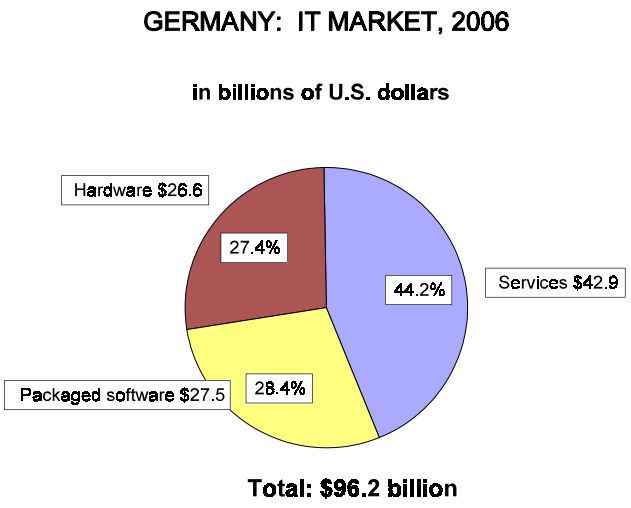
[167] "Economic Forecasts, Spring 2002."

[168] For more information on Germany's overall commercial environment, see the U.S. government's most recent Germany Country Commercial Guide (CCG). The 2002 Germany CCG is available at http://www.usatrade.gov/Website/CCG.nsf/ShowCCG?OpenForm&Country=GERMANY.

[169] *IDC Worldwide Black Book*, IDC, April 2002.

9.5 percent, reaching $42.1 billion. The hardware market will rise at a sluggish CAGR of 4.0 percent, to reach $26.6 billion (Figure 3-2). Germany will account for slightly more than one quarter of western Europe's IT market in 2005.

Figure 3-2



Source: IDC April 2002 Black Book

Germans appreciate leading-edge technologies...

Germany is renowned for being one of Europe's most "high-tech" countries. Germans take great pride in having, as well as producing, some of the latest and greatest technologies. Compared to their European neighbors, German firms tend to purchase the best technologies available, and usually accord more importance to technology quality than price. Consumer products in Germany, such as automobiles, are known for their superior quality. Germany also prides itself in having one of the most modern telecommunications infrastructures in the world.

...yet take fewer risks on them

At the same time, German businesspeople have the reputation for being methodical, and this tendency is reflected in their actions regarding IT investments.[170] German firms long have had a reputation for conservative attitudes toward IT purchases and for taking fewer risks in this area than their other European counterparts. German businesspeople reportedly tend to ask more questions about technologies they are considering (such as about warranties, upgrades, support, and the next version of a product), and taking longer to make purchasing decisions, than many of their European and U.S. counterparts. German firms are also particular about their suppliers. They tend to stick with IT providers they already use, particularly in the hardware area, and rarely do repeat business with IT suppliers with which they have any negative experience.[171]

Germany lags the United States in IT investments

Although Germany has the largest IT market in western Europe, it lags behind the United States in IT usage. Germany's IT spending per capita in 2001 was $774, according to IDC's April 2002 Black Book, slightly less

[170]In general, it can be stated that Germans do not undertake very much without extensive planning. German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001, and "The German Paradox," *Business Communications Review International*, January 2, 2002.

[171]Ibid. In the past few years, many German businesses reportedly have been trying to become more open to new ideas and more entrepreneurial in terms of technologies to enhance their competitiveness. However, conservative attitudes still dominate.

than half that in the United States ($1,617). Although Germany's PC and Internet penetration rates are higher than those of the United Kingdom and France, they are low compared to the United States. Germany's PC penetration rate in 2000 was 34 PCs per 100 people, compared with 59 per 100 in the United States, according to the ITU, which also reported that 29 percent of Germans had Internet access, compared to 35 percent of Americans, in that same year.[172] All of these figures underscore that the German IT market remains underdeveloped, offering numerous opportunities for U.S. technology providers.

The economic slowdown has brought an IT spending slowdown...

Because of recent large IT investments and insecurities about the future of the economy, large German firms are following the same key trends occurring throughout western Europe: cutting and reprioritizing their IT purchases, taking fewer chances with suppliers, developing e-business strategies to accompany their e-business technology purchases, and outsourcing many of their business processes to save money. For example, one large German firm reported that it no longer manages its employees' company car usage, having outsourced this service to another firm. As a result, the first firm also no longer has the databases that ran the car usage system.[173]

Economic concerns have increased German managers' caution regarding technology purchases. Large, established German firms have made buying hardware, software, and services from large, established, brand-name technology providers, as well as buying technologies perceived to have long life-cycles, major priorities over the past year. In fact, U.S. Department of Commerce market specialists in Germany report that large German systems integrators, value-added resellers, and value-added distributors work generally only with the top three products in each IT market segment and, if they are going to resell U.S. solutions, want to see references from at least the U.S. market. IT purchasers are asking even more questions, and/or taking longer to decide on purchases, than in the recent past. Despite the more cautious attitudes, quality is still a very important consideration, and German firms prefer to buy "the best."

...but IT spending continues

Despite the economic slowdown, German firms are continuing to invest in IT. Observers report that German firms are watching their rivals, in Europe and elsewhere, invest in technology, and realize that to remain competitive they have little choice but to do the same. Further, as more and more German firms become networked, they must invest in IT to build and optimize these electronic relationships. In addition, allocating IT investments to the euro transition, as well as Y2K remediation in the late 1990s, has created pent-up demand for other technologies among many German enterprises. As euro-related investments wind down, more money may become free for other IT areas.

[172] *ITU World Telecommunication Development Report*, International Telecommunication Union (ITU), 2001.

[173] German industry representative, interview by USDOC staff, Hamburg, Nov. 12, 2001.

Trends in technology investments

In the late 1990s, many large German firms focused on re-engineering their business processes, particularly via enterprise resource planning (ERP) software, and many of them installed German software leader SAP's flagship ERP software, R3, throughout their organizations. Some middle-sized firms also invested in R3, a packaged version of which SAP had tailored to this market (middle-sized firms, known as Mittelstand, are relatively numerous in Germany and are described later in this section). However, R3 reportedly was not as successful in the middle-sized firm market as SAP had hoped.[174]

Now, as in the United States, many large German companies have reached the point where they can automate their internal processes no further. They realize that the next step is to create and optimize data communications relationships among their employees and with the outside world– their customers, partners, and suppliers. To this end, investments are high in intranets and extranets (both in hardware and data and network management software) and e-business technologies.

At first, the adoption of these newer technologies was slow, particularly among German firms in traditional industries, run by managers known for the most conservative attitudes toward IT. However, as in the United States, many German "old economy" companies learned quickly that they needed to invest in technologies to remain competitive, and that they could use "new economy" ideas to solve old economy problems, and e-business spending took off in the late 1990s.[175]

Software and services markets are booming

Demand for software and related computing services is booming. These market segments are expected to grow rapidly in the near future (packaged software at 12.5 percent and services at 8.4 percent in 2002, according to IDC's April 2002 Black Book) as German enterprises increase these investments to expand productivity and efficiency and improve customer services. However, *EITO 2002* reports that there has been a shift from emphasis on customized to packaged applications as German firms seek to benefit from the experience of software developers and to cut costs.[176]

Solutions for establishing and augmenting online relationships are in high demand. Major software and services growth areas are customer relationship management (CRM),[177] supply chain management (SCM), IT security, and e-commerce (namely in technologies that can speed up sales processes and/or generate rapid cost savings, such as logistics, sales

[174]Ibid.

[175]Ibid.

[176]*European Information Technology Observatory 2002* ("EITO 2002"), Frankfurt, March 2002.

[177]As described in Chapter 2 and later in this chapter, European and German laws call for tighter protection of personally identifiable data than those in the United States. German industry representatives report these laws have affected the use of CRM software/services in Germany. Many German companies do not use CRM to share information on their customers with other firms, including partners and suppliers. Instead, they tend to use CRM internally for statistical analysis and/or anonymous profiling, such as to track market and consumer behavior. German industry representative, interview by USDOC staff, Hamburg, Nov. 12, 2001.

tracking, and e-procurement). In fact, industry representatives state that e-commerce software comprises 20 percent of Germany's software market.[178]

Security technologies lead demand

Information systems security is one of the most rapidly rising priorities of IT investment, particularly as German firms connect their networks with the outside world and because a large number of German firms have not yet invested in IT and online security. The German media published many articles about IT security which highlighted dangers as well as opportunities for security products.[179] Security software sales were valued at approximately 750 million DM ($357 million) in 2000 and are expected to grow to 1.1 billion DM ($524 million) in 2003.[180]

Although they had been popular before, security technologies and services became much more important to German firms in 2001. For smaller firms, the growing number of viruses is convincing them of the need to use firewalls and other technologies to protect their networks. Larger firms' demands have extended to include remote network management products and redundant systems, spurred by witnessing how U.S. firms located in the World Trade Center used such technologies to resume work almost immediately after September 11, 2001. German firms whose spending had been influenced by September 11, 2001, for the most part still were gathering information on IT security options and costs in November 2001 and planning their investments. Actual outlays are expected to occur later in 2002.[181]

Despite the heightened interest in information systems security, many German decision-makers reportedly are still not prepared to invest large amounts of money into it. This is partly based on a lack of information on available technologies and how to use them as well as a widespread popular sense, encouraged by horror stories in the media, that "determined hackers can penetrate everything," according to sources in Germany.[182]

Demand for IT services

Services such as systems integration (SI) are in demand as firms connect their networks to extranets. Demand for services related to the Internet and e-commerce is rising as well.

Prices for some IT services have fallen, generally in relation to how important they are perceived to be to German firms' bottom lines. Vendor choices for web design and related services, for example, are based very much now on cost, and their prices have fallen appreciably as spending in this area has dropped. Prices for SI services have fallen by much less, since firms still consider systems integration to be a very important technology investment. In fact, after using smaller SIs for the last few years, many large companies

[178]"Germany: Software for E-Commerce," *Industry Sector Analysis,* U.S. Department of Commerce/ U.S. Commercial Service, Germany, 2001.

[179]German industry representative, e-mail correspondence to USDOC staff, May 2001.

[180]"Germany: Internet Security," *International Market Insight,* U.S. Department of Commerce/ U.S. Commercial Service, Germany, 2001.

[181]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

[182]"Germany: Internet Security," and German industry representative, e-mail correspondence to USDOC staff, May 2001.

reportedly are returning to using larger, more established, and more expensive SIs, such as IBM. This is due to firms' more conservative attitudes toward IT spending.[183]

Outsourcing is rising

IT outsourcing, interest in which had slowed in recent years, is becoming very popular. As they tie IT more tightly to their business departments, German firms are finding it easier to outsource the automation of their business processes than to rely on their own IT departments, which may not be as attuned to business needs. Further, growing enterprise data traffic and increasingly complex networking connections have raised IT management costs, and firms are outsourcing to save money.[184] Outsourcing of customer relationship management is particularly popular. The market research firm Dataquest found in 2001 that 45 percent of western Europe's total outsourcing CRM revenues came from Germany. Hosted data storage also is growing.

Hosted applications are becoming increasingly in demand and are thought to have great near-term potential in Germany. In fact, the majority of enterprises in Europe deploying application outsourcing are German.[185] However, industry sources report that successful application service providers (ASPs) in Germany reportedly most often are not the "new economy" start-up ASPs. Rather, they are firms with longstanding experience in data processing and other computer processes, such as EDS and Hewlett Packard (HP), who have moved into this new niche by capitalizing on their experience with IT, IT security, and management, as well as their brand-name recognition. Some analysts expect IT outsourcing to continue to be a future high-growth area, although others think that interest in outsourcing will be tempered once the German economy picks up and cost savings become less critical.[186]

Hardware for networking and storage is a growth area

Although the hardware segment will have the slowest 2002-2006 CAGR (4 percent, according to IDC's April 2002 Black Book) of the German IT market, in absolute terms hardware expenditures are rising appreciably. In particular, German enterprises which are ramping up their networks and automating more and more processes are investing in the hardware to support new or more sophisticated Intranets and extranets, as well as the storage needed to hold their ever-increasing amounts of data. In fact, demand for networking equipment will grow by more than 7 percent annually through 2006, according to IDC's April 2002 Black Book. Mid-range and low-end servers, increasingly used to support web sites and high-end databases, are another high growth area for the coming four years, and there is expected future demand in storage to add on to both servers and PCs.

[183]German industry representative, interview by USDOC staff, Berlin, Nov. 7, 2001.

[184]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

[185]"E-Banking Growth," *Business Communications Review International*, January 2, 2002.

[186]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

PC sales are down

Germany's PC market experienced problems in 2001, according to *EITO 2002*, with depressed demand in the consumer market and lack of demand from large businesses due to budget freezes and an unwillingness to spend in the economic slowdown. Notebook purchases, while not as negatively affected as PCs, also had lower sales than in 2000. According to IDC's April 2001 Black Book, the German market for PCs fell 12.7 percent in 2001. The PC market is expected to continue to slow in 2002 and 2003, albeit at rates closer to one percent.

Some spending on the euro transition continues

As in many other European countries, much German IT spending leading up to and during 2001 was allocated toward preparing internal and external networks and databases for euro transactions. Many German firms, particularly small and medium-sized enterprises (SMEs),[187] reportedly got a late start on their euro transition-related IT investments, and expenditures in this area, such as for system management services and data recovery and backup structures, are expected to continue through 2002. The German retail sector has been among those spending the most on euro-related investments. However, this market segment does not appear to be a growth market as it was in 2001.[188]

Trends among leading vertical industry IT end-users

Major vertical end-users of IT in Germany include the banking and financial services, telecommunications, and automotive industries, and the German government. Various factors have influenced their IT spending over the past few years.

Banking and financial services

The banking industry was Germany's earliest adopter and most intensive end-user of IT. In fact, many German banks' technologies now are relatively old. Banks are reportedly eager to upgrade them, although in recent years they have been unable to do so on any large scale due to Y2K- and euro-related spending. Nonetheless, they have been investing in certain technologies they feel will save them money, most noticeably for e-banking, which is very popular in Germany. Despite these allocations, industry representatives report that German banks have lowered their overall IT spending over the past few years to cut costs.[189]

As of November 2001, German insurance companies reportedly had cut their IT spending very sharply after September 11, 2001, in anticipation of a rise in insurance claims.[190]

[187] For comparison purposes, it is important to note that the definition of an SME in Germany differs from the typical usage of this term in the United States. SMEs in Germany are defined as those firms having fewer than 300 employees.

[188] German industry representative, e-mail correspondence to USDOC staff, May 2001.

[189] German industry representative, interview by USDOC staff, Hamburg, Nov. 12, 2001.

[190] Ibid.

Telecommunications operators have cut IT spending, but they still need to invest

Like its many counterparts around the world, the German telecommunications industry has seen its profits plummet, and as a result operators have been forced to cut their IT outlays. Spending cuts have been particularly pronounced among those German operators that bought the six German licenses for third generation (3G) mobile communications in 2000. These telecommunication operators reportedly have nearly ceased spending on IT for their own use as they put their money into developing 3G technologies in a frenzy to be first-to-market.[191]

Automotive industry

The German automotive industry is a heavy user of IT. Automakers have extensive online relationships with their suppliers and rely on technology for their just-in-time manufacturing. IT investments by automotive firms remain relatively steady, although this could change if consumer confidence, and therefore automobile purchasing, falls.[192]

The German government's use of IT

The German government is not as advanced as its private sector in using new technologies. Nonetheless, the use of IT by government agencies at the federal, and to a lesser extent state, level is fairly advanced. Current IT purchases lean toward services such as integration, according to German government suppliers. At the local government level, many IT purchases are of more basic technologies such as hardware and networking equipment.[193] The German government spent €5.4 billion ($4.8 billion) on IT and telecommunications in 2001, according to *EITO 2002*. EITO predicts this will rise to €5.6 billion ($4.9 billion) in 2002. The government's use of online technologies is described in the e-government section at the end of this chapter.

Technology use by smaller firms, including the numerous Mittelstand

As would be expected, German SMEs lag larger firms in implementing IT solutions. Although nearly all German SMEs have PCs, many have basic LANs, and more than 95 percent have Internet access, few use more advanced networking technologies such as extranets. However, some have been forced to do so by larger firms with whom they do business.

Many small German firms reportedly still do not see the benefits of more advanced IT investments, consider e-business technologies to be too expensive, have difficulty finding skilled IT staff to implement and manage technologies, and are nervous about security issues related to Internet-related IT investments in particular.

Another key reason for the lack of advanced IT usage by smaller firms is the unique situation of the Mittelstand– the medium-sized firms (usually having 200 to 300 employees) which dominate German industry.[194] Most Mittelstand are family-run

[191]Ibid.
[192]Ibid.
[193]German industry representative, interview by USDOC staff, Berlin, Nov. 9, 2001.
[194]Mittelstand emerged to rebuild the country's industries and economy after World War II, in many cases building entire German industries from scratch.

(and, dating from post-World War II, are now in a family's second or third generation), and in many cases family members reportedly tend to prefer to take money out of their family firms, not reinvest it, such as in IT. Further, many Mittelstand tend to have well-established business contacts and business processes which they are reluctant to change.[195]

These facts notwithstanding, a good number of mid-sized German firms ventured into e-business in the late 1990s and 2000. However, those Mittelstand owners who do want to invest in IT face the challenge of raising enough money to do so. Because most Mittelstand are privately owned, they are dependent on banks, rather than the stock market, for money for capital investments, and bank loans to SMEs in Europe historically have been relatively expensive. New German legislation designed to make lending to SMEs more affordable will change this situation, and is expected to help SMEs purchase more IT.[196]

IT investments are lower in the eastern states of Germany

Organizations in the eastern part of Germany lag behind their western German counterparts in IT usage. In fact, a May 2002 poll by TNS EMNID found that eastern Germany's Internet penetration rate was 37 percent, compared with 43 percent in western Germany.[197]

Part of the reason is historical. Former East Germany had a very poor IT infrastructure when it emerged from communism, and the centrally planned economy was woefully not up to the task of adjusting to the information society. Moreover, IT companies were located largely in southern and western Germany. Communist rule until 1989 sheltered firms in East Germany from the competitive conditions present in West Germany which forced firms there to invest in IT.[198]

Although Germany has been reunited for more than a decade, this legacy remains. Western, particularly southern, Germany still contains the most affluent regions of the country, and the east still has less industry, and fewer IT investments. One German industry association explained that another reason for lower IT usage in the east is because marketing of technologies is often in English (particularly in theoretical or

In fact, these middle-sized firms dominate the German economy to this day, representing the "typical German firm," and have caused Germany to have a higher than European average number of middle-sized companies.

[195]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

[196]Ibid. Germany is in the process of transposing into German national law a new EU directive intended to ease the credit crunch for European SMEs. This directive, issued in 2000 and known as Basle II, mandates fixed lending rates to SMEs.

[197]"Half of Germans Don't Want Internet Access," Europemedia.net, May 6, 2002.

[198]German industry representative, interview by USDOC staff, Berlin, Nov. 8, 2001.

technical English), which fewer eastern Germans know.[199]

The German government, partly through the use of EU structural and cohesion funding (discussed in Chapter 2), is trying to increase IT usage levels in eastern Germany. Some governments in eastern Germany see IT as a driver for increased public services, and are using EU funds to form public-private partnerships to undertake new IT projects. For example, the government of Leipzig jointly founded a company with IBM Germany to rebuild the city's IT infrastructure.[200] In addition, the German government actively is trying to recruit companies, including IT firms, to invest in the east. In fact, Dresden has become a magnet for IT firms, led by the major U.S. investor AMD which has been producing microchips in a state-of-the-art facility there for several years. These efforts notwithstanding, industry observers report that growth in IT usage levels in eastern Germany, although growing, in absolute terms remains relatively small.[201]

Foreign firms supply most of the IT market

There are more than 5,000 IT firms in Germany, the majority of which are medium and small.[202] However, with the exception of hardware producer Siemens, software producer SAP, and systems integrator T-Systems (a division of Deutsche Telekom AG), German firms do not play a dominant role as suppliers to the German IT market. Many of the large local IT suppliers are U.S.-headquartered; in fact, a number of large U.S. hardware and software firms serve the German market via Germany-based subsidiaries (two of the top 10 major U.S. investors in Germany are in the IT industry, IBM and HP).

U.S. firms are competitive in all IT industry sectors in Germany, and U.S. IT products are highly regarded there.[203] Most hardware is supplied by U.S. companies, with some competition from Siemens and Fujitsu in the PC and notebook sectors. U.S. firms are particularly competitive in software, supplying an estimated 60 percent of the German software market, mainly through subsidiaries. Most of their competition comes from German, French, and U.K. software vendors.[204] U.S. IT exports to Germany were $1.8 billion in 2001.[205]

SAP's software is extremely popular among large German firms

The one notable exception to U.S. dominance in the German software market is the German

[199]Ibid. Under communism, East Germans studied Russian and other Slavic languages rather than English, as in West Germany.

[200]German industry representatives, interviews by USDOC staff, Berlin, Nov. 8-9, 2001.

[201]German industry representative, interview by USDOC staff, Berlin, Nov. 8, 2001.

[202]"Germany: Computer Services," *Industry Sector Analysis,* U.S. Department of Commerce/ U.S. Commercial Service, Germany, 2001.

[203]Ibid.

[204]Ibid.

[205]Source: U.S. Department of Commerce. Trade data include computer hardware and LAN equipment but do not include computer software. The value of U.S. IT exports to Germany vastly understates U.S. firms' competitiveness there because many large U.S. IT suppliers have local manufacturing plants in Germany and other European countries from which they serve the German market. In addition, many U.S. IT firms also serve western European markets from Asia-based manufacturing operations.

firm SAP, the most popular business process software producer in the German market. SAP is the top choice of most large German companies, particularly in the areas of ERP, CRM, SCM, and e-procurement. As a large, well-established vendor, SAP's popularity has been amplified in the past year as German firms are taking fewer risks with smaller software vendors.

Nonetheless, SAP is too expensive for most small and mid-sized German firms. Industry representatives in Germany report that although some small German software firms have popped up to fill this niche, U.S. firms are seen as being at the leading edge of these technologies and as having valuable experience in the largest and most mature software market in the world– the United States. Many opportunities exist for small U.S. software providers to target German SMEs.[206]

Small IT start-ups are multiplying

In the late 1990s, numerous German IT start-ups, many focused on the Internet, offering services as well as technologies, emerged to serve the German market. For example, hundreds of small German firms began to operate in the web and e-commerce software market. German states began to see local IT industries as key to economic growth, and regional economic development agencies began to encourage these IT start-ups, offering them "incubation" space, business plan counseling, and other services. Further, some large German firms launched Internet-focused business units to capitalize on the growing market. As in the United States, qualified IT employees became more difficult to find to feed the demands of the growing number of new IT and Internet ventures.

Although many of these firms remain successful, as elsewhere, a large number have failed in the past few years, particularly during the Internet sector crash of the last 18 months. Even the once-formidable German e-commerce software firm Intershop is struggling. Many incubators have failed as well. As in the United States, the German IT industry is in the middle of change, with firms consolidating and actors trying to figure out which technologies and services will be profitable.[207] Nonetheless, new firms continue to appear.

In the wake of the technology sector crash and stock market downturn, obtaining funding has become more difficult. Venture capital (VC) has become much harder to get in Germany since, as elsewhere, German VCs who lost money in the past few years on bad investments are now more conservative with their spending. Further, unlike their U.S. counterparts, German VCs have never gone through an economic downturn, and this experience has led them to retrench even further than U.S. VCs, further squeezing the availability of venture capital in Germany.[208] Germany's tech-focused stock market, the

[206]German industry representatives, interviews with USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

[207]Ibid.

[208]The U.S. venture capital industry, which is a few decades old, is accustomed to cyclical downturns. In contrast, the German VC industry is only about four to five years old, and this is its first experience with large-scale investment failures. German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

"Neuer Markt," (similar to the NASDAQ) has been rather small in size and is in a slump.

The German government has been trying help German IT firms, but under EU regulations cannot directly subsidize them. Instead, it has used other methods to assist them financially such as low-interest loans, low-cost office space, and business consulting.

Despite the challenges of a tighter capital market as well as a tempered technology market generally, small local IT firms continue to succeed in Germany. These firms tend to cluster in Munich (Germany's software industry center), Berlin (with its abundance of cheap office space, institutions of higher learning, and young people), and Hamburg (Germany's advertising and media center).

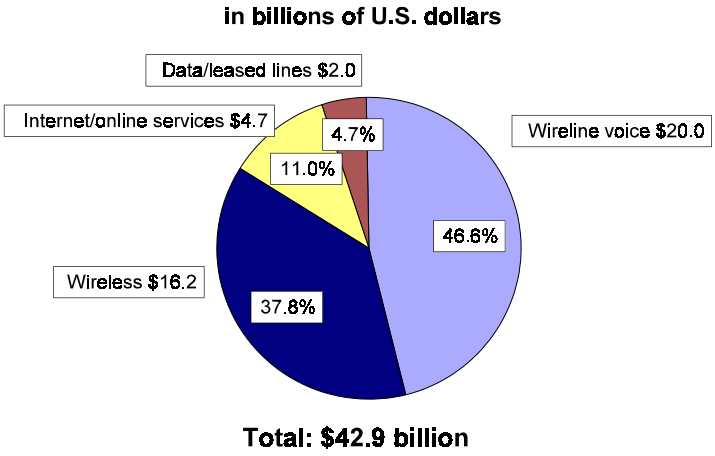
TELECOMMUNICATIONS

Largest telecommunications market in the region

Germany's telecommunications market, similar to its IT market, is the single largest in western Europe and the third largest in the world, after that of the United States and Japan. The German market for telecommunications services was valued at €48.7 billion ($42.9 billion) in 2001, accounting for 22 percent of the telecommunications services market in the EU, according to *EITO 2002*. Wireline telephone services and wireless services accounted for the bulk (47 percent and 38 percent, respectively) of the German market in 2001. Internet and online services (11 percent) and switched data and leased line services (5 percent) comprised the remainder (Figure 3-3).

Figure 3-3

GERMANY: TELECOM SERVICES MARKET, 2001



Source: EITO 2002

The German market for telecommunications equipment was valued at $10.5 billion in 2001, accounting for 15 percent of the EU equipment market, according to Reed Electronics Research. Wireline equipment accounted for 53 percent of the German market for telecommunications equipment, the remainder being wireless equipment (Figure 3-4).

Growth moderating in telecommunications services

The German market for telecommunications services grew by 13 percent in 2001, according to an estimate by Germany's Telecommunications Regulatory Authority, RegTP.[209] The current global economic slowdown is slowing the expansion of the German telecommunications services market to a crawl in 2002, but many observers expect telecommunications services to resume their 9 to 10 percent growth rates of 1998-2000 by 2003. The two principal drivers of this growth are the Internet and mobile communications.

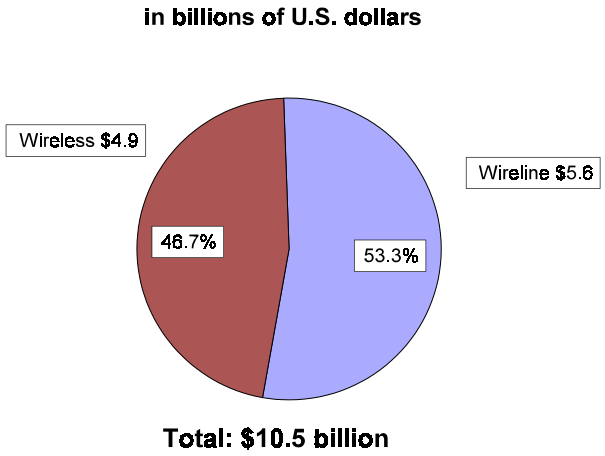
Stagnant market for equipment

The German market for telecommunications equipment was stagnant in 2001, due to both the global economic slowdown and telecommunications operators' excessive debt burdens. The debt burden of many German operators was aggravated by their investment of $46 billion in the six licenses for 3G wireless services auctioned off by the German government during 2000.

Nevertheless, sales of terminal equipment continued to grow in 2001. Network equipment is likely to resume the 8 to 9 percent growth rates of 1998-2000 by 2003, driven by the needs of telecommunications service providers for network equipment for both fixed and mobile broadband communications. Despite the slowdown in the equipment market, U.S. exports of telecommunications equipment to Germany

Figure 3-4

GERMANY: TELECOM EQUIP. MARKET, 2001



Source: Reed Electronics Research, 2002

increased by 3.8 percent in 2001, reaching $835 million.[210]

Thoroughly modern telecommunications infrastructure

Germany has one of the most modern telecommunications infrastructures in the world. The German government invested a huge sum in modernizing the telecommunications infrastructure of the former East Germany. For example, fiber optic cable was installed up to the curb of

[209] *Annual Report 2001*, RegTP, Germany, 2002.

[210] Source: U.S. Department of Commerce. The value of U.S. telecommunications exports to Germany vastly understates U.S. firms' competitiveness there because many large U.S. telecommunications suppliers have local manufacturing plants in Germany and other countries in western Europe from which they serve the German market. In addition, many U.S. telecommunications equipment firms also serve western European markets from Asia-based manufacturing operations.

some 2 million homes in the region during the seven years following reunification in 1991. Public telecommunications investment throughout Germany has been declining since 1995, but private investment throughout Germany has largely compensated for this decline, driven by competition in mobile communications, data communications, and voice communications, all due to the liberalization of these services.

Liberalization of the regulatory regime

Many opportunities for U.S. telecommunications exports and investment in Germany have resulted from liberalization of the German regulatory regime for telecommunications services over the past decade. Although all segments of Germany's telecommunications market used to be monopolized by Deutsche Telekom AG (DTAG), the German government opened mobile communications to competition in 1992, transmission of data communications to competition in 1995, and all other telecommunications services (along with the associated infrastructure) to competition on January 1, 1998.

The Regulatory Authority for Telecommunications and Post (RegTP), which began operating on January 1, 1998, and is modeled on the U.S. Federal Communications Commission, aims to ensure implementation of this liberalization by serving five principal functions (see Text Box 3-1).

Text Box 3-1

TELECOMMUNICATIONS REGULATORY AUTHORITY: RegTP

RegTP's five principal functions:

- licensing facilities-based telecommunications operators;
- frequency allocation;
- approving and reviewing tariffs for telecommunications services;
- imposing universal service obligations; and
- control of network access and interconnection.

RegTP[211] is a government body with nominal oversight performed by the German Federal Economics Ministry, but is independent of the telecommunications operators that it regulates, as required under the EU Telecommunications Services Directive (described in Chapter 2). As elsewhere in western Europe, the German regulatory regime is asymmetrical – meaning that its main focus is on the incumbent, as opposed to the incumbent's competitors – to offset the significant market power of the incumbent telecommunications operator, DTAG.

In Germany, licenses are required for facilities-based network operators that offer transmission services and voice telephony over public networks. However, no license is necessary for resellers and providers of data or multimedia services over leased lines.

[211]Further information is available about RegTP on its website (http://www.regtp.de), which has a separate section that is translated into English.

DTAG: powerful incumbent and market leader

Despite liberalization, Germany's telecommunications services market continues to be dominated by DTAG, which is Europe's largest telecommunications operator in terms of both revenue and subscribers. During the first half of 2001, DTAG earned revenues of $20 billion, ranking it as the sixth largest telecommunications operator in the world, according to *Communications Week International*.[212] DTAG currently has 50 million wire lines in service, 40 percent of which are integrated services digital network (ISDN)[213] channels, giving Germany the highest ISDN penetration rate in the world.

Until 1996, DTAG was part of the German federal (national) government. In 1996, DTAG was incorporated, and a minority of shares in its stock was sold in the largest IPO in European history. As a result of further privatization, the majority of DTAG's shares are now privately owned.

However, the German Ministry of Finance still owns 38 percent, and a government-owned bank an additional 5 percent, of DTAG's shares. The German government plans to complete privatization of DTAG when market conditions permit, after the current global slowdown, to which it attributes the current low valuation of DTAG's shares in the stock market (€12.42, equivalent to $10.93 on May 22, 2002).

As a result of privatization and liberalization, DTAG has transformed itself in the past five years from a Germany-only monopolist to a global telecommunications operator with one of the most modern telecommunications infrastructures in the world. DTAG currently has four principal lines of business, provided by its following four divisions:

- **T-Com**, which provides wireline network services to 41 million residential customers and some 350,000 small and medium-sized businesses in Germany and central Europe.
- **T-Online,** DTAG's Internet service provider (ISP), which is the largest ISP in Germany. T-Online increased the number of its subscribers in Germany by 35 percent during 2001, reaching a level of 10.7 million.
- **T-Mobile**, DTAG's mobile division. It has 67 million customers around the world. T-Mobile International has majority-owned subsidiaries in Germany, the United States, the United Kingdom, Austria, and the Czech Republic. Its U.S. subsidiary is known as VoiceStream Wireless Corporation, which DTAG acquired in mid-2001.
- **T-Systems**, Europe's second-largest provider of integrated IT and telecommunications services, operates in over 20 countries. DTAG acquired T-Systems from Daimler Chrysler in two steps between 2000 and 2002.

DTAG reported substantial subscriber growth in its core businesses during 2001, especially

[212] "Telecom Top 100," *Communications Week International*, March 4, 2002.

[213] ISDN has a faster transmission speed (64 Kbps), and can support many more lines and numbers, than traditional telephone lines. It is popular with SMEs for transmitting both voice and data.

in its mobile and broadband operations. However, DTAG was in the red during 2001 for the first time since its incorporation in 1996. It lost €3.5 billion ($3.2 billion) in 2001, compared to a profit of €5.9 billion ($5.3 billion) in 2000. DTAG's losses are due primarily to interest payments on its debt and limited write-offs of overpayments for recent acquisitions. Consequently, DTAG has recently cut its annual dividends and reduced its annual investment budget by 10 percent to a level of €9 billion ($7.9 billion).

Debt burden of DTAG

Despite its market power, DTAG, like many other incumbent operators in the EU, is currently struggling to decrease its excessive debt burden, valued at €65 billion ($57 billion). DTAG began to accumulate this debt when it modernized the bulk of its network in 1998 to remain competitive with the large number of operators that entered the German telecommunications market to take advantage of liberalization. DTAG further increased its debt during 1999 and 2000 by acquiring numerous foreign telecommunications operators, most notably VoiceStream in the United States (for which it paid $51 billion) and 51 percent of the principal Croatian telecommunications operator (for $1.3 billion). In 2000, DTAG's debt burden was substantially increased by the inflated price that it paid for its licenses to offer 3G wireless services in Austria, Germany, Netherlands and the United Kingdom.

DTAG planned to reduce its debts by some €15 billion ($13 billion) by the end of 2002 by selling its T-Mobile subsidiary and the remainder of its cable TV networks. However, in March 2002 DTAG announced a one-year postponement of this debt reduction because it did not expect to consummate either one of these asset sales during 2002. T-Mobile's IPO has been postponed until market conditions improve, and an agreement to sell six of DTAG's cable TV networks to Liberty Media was rejected by the German Cartel Office in February 2002 on anti-trust grounds.

Liberalization has brought growth and competition in wireline services

One result of liberalization that is not widely recognized is its stimulation of additional demand for wireline services in Germany, especially online services. According to RegTP's *Annual Report 2001*, the number of wireline call minutes has increased by 60 percent since 1998. The principal cause of this rise is growth in the number of calls to online services, which accounted for 30 percent of wireline calls in the country during 2001.

Wireline liberalization has also succeeded in promoting competition rapidly and lowering prices in Germany's market for long-distance and international telecommunications services as well as for Internet access (however, competition in wireline services is not yet as strong as in wireless services).

The intensity of competition in Germany is reflected by the fact that there were 1,988 telecommunications service providers registered with RegTP in 2001, mostly offering voice telephony or Internet access services (although many of these have since gone bankrupt). By the end of 2000, competitive telecommunications operators

(many of which were owned by U.S. companies in whole or part) had invested over 140 billion DM ($64 billion)[214] in infrastructure and license fees to be able to compete with DTAG. During 2000, 30 percent of long-distance calls were provided by DTAG's competitors, as also 39 percent of international calls and 31 percent of calls to the Internet, according to the European Commission. Consequently, the prices for long-distance and international telecommunications services in Germany dropped by 90 percent from 1998 to 2000, while the price for Internet access decreased by 40 percent.

Some of DTAG's wireline competitors

DTAG's principal wireline competitor is Arcor, 74 percent of which was purchased by Vodafone of the United Kingdom in 1999; the remainder belongs to the German national railway (Deutsche Bahn) and Deutsche Bank.[215] Another leading wireline competitor is WorldCom, which has operated a national switched voice network in Germany since 1991, and has since expanded its portfolio to offer virtually every kind of basic and value-added telecommunications service in the country. As part of its pan-European fiber optic network (named Ulysses), launched in 1998, WorldCom plans to lay 3,100 km of fiber in Germany alone. Colt Telecom also has made important inroads into the German market.

But DTAG still dominates wireline services

Despite the successes resulting from liberalization of telecommunications regulations, competitive wireline operators accounted for only 13.4 percent of German telecommunications revenues in 2000, an increase of only 0.7 percent over 1999, according to the German Association of Telecommunications and Value-Added Service Providers (VATM).[216] In a July 2001 White Paper, VATM predicted a decline in competitive operators' share of the wireline market and warned that, while mobile competition was flourishing, "competition for (wireline) systems, three years after full deregulation, has entered an extraordinarily critical stage."[217] A significant number of competing carriers and wireless local loop operators in Germany have filed for bankruptcy since 2000, and a VATM official said in September 2001, "We're expecting many more bankruptcies, followed by a process of consolidation."

VATM has criticized RegTP for failing to adequately restrain the increasingly aggressive incumbent, which VATM has repeatedly accused of cross-subsidizing package deals that it offers at prices below cost. For example, VATM estimated that DTAG would control 98 percent of the German market for DSL by the end of 2001, squeezing out such alternative technologies as wireless local loop. VATM called in its

[214]The exchange rate used in this report is $1.00=2.2 DM.

[215]Vodafone seeks to divest itself of Arcor and keep only Arcor's wireless affiliate, the D2 mobile network, but first Vodafone is required by German law to allow Deutsche Bahn to divest itself of its share in Arcor.

[216]With headquarters in Cologne, VATM represents almost 60 carriers in Germany, which account for over 80 percent (by revenue) of DTAG's telecommunications competitors. See http://www.vatm.de.

[217]"Competitive Situation in the German Telecommunications Market," VATM, July 2001.

White Paper for the German government, RegTP and the German Cartel Office to take fourteen additional steps to prevent DTAG from abusing its dominant position in the telecommunications market. RegTP has taken several steps to address the concerns of DTAG's competitors, with mixed results, which are summarized in the following paragraphs.

Negligible competition in local wireline services...

At the end of 2001, DTAG still controlled 97 percent of the wire lines for providing local telecommunications services in Germany. As a result, retail prices for these local services have increased by 7 percent since liberalization in 1998, according to VATM. The principal reason that DTAG still has a virtual monopoly of local wireline services is the almost complete failure of local loop unbundling in Germany.

...due to lack of competition in the local loop

Because of its dominant position, DTAG is required under the EU Local Loop Unbundling Regulation (described in Chapter 2) to provide its competitors with access to all of its essential services and facilities, which means that DTAG must provide access to the local loop for a cost-based interconnection fee. Even though Germany was the first EU country to require its incumbent to unbundle its local loop, by September 2001 only 1.4 percent of DTAG's local loop had been unbundled for use by its competitors, according to the European Commission.

RegTP has not enforced the local loop unbundling rules against DTAG, which has strongly resisted unbundling its fiber (DTAG has offered unbundled access to its copper local loops since 1998). Nevertheless, as a result of complaints by the U.S. government and pressure from the European Commission, RegTP took steps in early 2002 to require DTAG to permit its competitors shared access to its local loop. Furthermore, in March 2002, the European Commission initiated a new legal proceeding against Germany, along with several other Member States, for failure to assure that the incumbent operator offers adequate unbundling, as required under the EU Unbundling Regulation. In April 2002 the Cabinet sent on to the Bundestag draft legislation that would allow call-by-call in the local loop. For this legislation to enter into force by the "deadline" of December 1, 2002, it would have to be passed by the legislative period that ends in July 2002.

Greater progress on interconnection difficulties

In contrast, the rapid success of competition in long-distance and international wireline services in Germany is largely attributable to regulation by RegTP of interconnection between DTAG and its competitors, as required under the EU Interconnection Directive (described in Chapter 2) and the WTO Basic Telecommunications Agreement (described in Chapter 1). This progress is due primarily to complaints from competitive operators, the European Commission and the U.S. government since 1999, urging RegTP to prevent DTAG from abusing its dominant market position by overcharging or delaying interconnection with its competitors. RegTP has been reducing interconnection fees in gradual steps since 1998. By the end of 2000,

120 competitive operators had interconnection agreements with DTAG.

In October 2001, RegTP proposed changing the basis for interconnection fees to reflect the actual cost of DTAG network elements used by a competitor, instead of the distance of transmission. However, under this new cost-based regime, competitive operators must connect with DTAG's network at a minimum of 475 points of interconnection to be eligible for the lowest interconnection fees. This regime was to be implemented by January 1, 2002, but as of June 2002 DTAG was using court challenges to delay implementation, as it has at every opportunity since the initiation of liberalization in 1998.

DTAG's T-Online dominates dial-up Internet

DTAG has used its dominance of the local loop in Germany to build a strong market share for its ISP subsidiary, T-Online. T-Online provides services to some 51 percent of dial-up Internet subscribers in Germany. Besides the United States, Germany is the largest market of AOL/Time Warner (AOL/TW), which supplies some 18 percent of dial-up Internet services there. Freenet has a market share of about 15 percent (although a large portion of these subscribers do not pay for their Internet subscription), Vodafone/Mannesmann has a market share of about 6 percent, and a large number of smaller ISPs supply the remaining dial-up Internet subscribers.

Similar to most ISPs in Europe, T-Online has not yet been able to earn a profit. Consequently, T-Online announced in January 2002 that it had begun charging customers for certain online content such as games, business newsletters, and fitness videos. However, analysts say it could be five years before ISPs earn substantial revenue by charging for content, according to *The Wall Street Journal*.[218]

But RegTP urges DTAG to support flat-rate access

As is customary in western Europe, most German subscribers to narrowband Internet services pay a metered fee, based on minutes of use, to the telecommunications operator that provides the dial-up connection to the Internet. Although many ISPs offered unmetered Internet access to their subscribers in Germany a couple of years ago, they frequently did so at a loss because they purchased dial-up access from DTAG on a per-minute basis.

To promote greater Internet usage, RegTP announced in November 2000 that it would require DTAG to offer competing ISPs the option of unmetered access for their Internet subscribers by February 2001. DTAG protested that this would overburden a network that was not designed to carry large amounts of data traffic and would slow the roll-out of its broadband network for Internet access.

In February 2001, T-Online withdrew its own retail flat-rate Internet access subscription offer, in order to stem its operating losses and to remove the basis for RegTP to require its parent, DTAG, to offer unmetered access to other ISPs. Since February 2001, DTAG has offered unmetered access to independent ISPs

[218]"Germany's T-Online Begins Charging Users for Content," *WSJ,* January 16, 2002.

(those not affiliated with telecommunications operators) on conditions unacceptable to them. At least one independent ISP continues discussions with DTAG to try to persuade it to allow the ISP to interconnect at DTAG's 475 regional switches instead of at its 1,622 local switches, as DTAG demands.

Three main drivers of growth

As throughout western Europe, growing competition, falling profit margins from basic voice services, and the slowdown of growth in Germany's telecommunications market have forced German telecommunications operators to focus on three main areas of growth: value-added telecommunications services, broadband, and mobile communications.

First driver: value-added services

Over the past two years, value-added services have become a primary source of revenue growth for telecommunications operators in Germany. Most operators there suffer from revenue losses in basic telecommunications services such as voice and data transmission. Because of intense competition and decreasing prices, voice traffic is becoming a commodity in the German market. For example, Vodafone's wireline operator in Germany (Arcor) finds that basic service (voice) still accounts for over 60 percent of its revenues, but value-added services are driving its revenue growth. In addition, as elsewhere in western Europe, there is excess capacity in Germany's wireline network facilities.

In recent years, the value-added services provided by most German wireline operators have been messaging and directory services for voice, Internet-related services for data, and private network management. More recently, the focus has shifted to broadband and IP networks, offering Voice over IP (VoIP) and eventually video over IP. Data communications for corporate users continue to be an important growth market, especially IP-based virtual private networks (IP/VPNs), such as offered by Colt Telecom since late 2000.

Corporate customers generally are the key consumers of value-added services in Germany, but this market is extremely competitive, due in part to a large number of pan-European operators such as Colt that focus only on the corporate market.

Competitive landscape in Germany's value-added services market

To deliver services to corporate users, competitive operators in Germany rely on leased lines from DTAG. Although RegTP has succeeded in keeping DTAG's rates for leased lines to levels that are low by the standards of western Europe, U.S. carriers have experienced delays of up to six months in obtaining access to DTAG's leased lines, substantially longer than elsewhere in the region.

Germany is committed under the WTO Basic Telecommunications Agreement to ensure that basic telecommunications service providers have access to and use of leased lines on reasonable and non-discriminatory terms. As a result, in February 2002 the U.S. government expressed concern to the German government about delays in leased line provisioning by DTAG. The German government replied that, in response to a

complaint it had received in October 2001, RegTP had announced in February 2002 an investigation of DTAG on two counts of anti-competitive behavior, one of which was the pricing and timing of leased line provisioning. RegTP addressed the leased line provisioning problem in June 2002, when it established strict deadlines for DTAG's provisioning of leased lines, with penalties for non-compliance and monthly reporting requirements. However, DTAG has challenged this ruling in court, which is delaying implementation.

Value-added services growth is driving sales in related equipment

Continued growth in value-added services is expected to create opportunities for associated equipment, especially networking equipment. As mentioned earlier, the LAN equipment market is one of the fastest growing IT market segments in Germany.

Second driver: broadband

In March 2002, the EU Commissioner for the Information Society, Erki Liikanen, told *Communications Week International* in an interview that, "Germany is broadband's success story (in Europe), but they have not created a competitive market."[219] (As described in Chapter 2, in its *eEurope* initiative the European Commission is promoting a major expansion in broadband Internet access by 2005.)

According to RegTP's *Annual Report 2001*, broadband Internet access at speeds of 124 Kbps and over is now available in Germany over DSL, cable TV, powerline communications, and satellite. However, the only one of these technologies that has really succeeded in Germany so far has been DSL. In fact, 99 percent of broadband access in Germany today is provided by DSL, and almost all of the remainder is provided by cable TV, according to RegTP.

DTAG's virtual monopoly of DSL

After being obligated to sell its cable TV networks to private operators, DTAG launched DSL for business and residential users in mid-1999 and obtained first-to-market advantage in Germany. DTAG is currently deploying its high-speed Internet access product, asymmetrical DSL (ADSL)[220] in Germany as fast as it can to exploit the convergence of telecommunications and information technology. According to *DSL Prime*, during the last quarter of 2001, more DSL lines were installed in Germany and Japan, respectively, than in the United States, which has more than twice the population of either one of these countries.[221]

By the end of 2001, DTAG had transferred its de facto monopoly of the local loop into the new market for DSL services in Germany, with a market share of 96.5 percent, according to RegTP's *Annual Report 2001*. DTAG has 2 million DSL connections, at least three and a half times its level at the end of 2000.[222] DTAG's CEO, Dr. Ron Sommer, reported in March 2002 that DTAG's ADSL is available

[219]"Regulators Geared for Access Overhaul," *Communications Week International*, March 4, 2002.

[220]DTAG markets its ADSL as T-DSL.

[221]*DSL Prime*, February 27, 2002.

[222]"Buoyant Year for Deutsche Telekom," *Communications Update,* CIT Publications, January 18, 2002

to 80 percent of the German people, although primarily in urban areas.

DTAG's rapid deployment of DSL was facilitated by a decision of RegTP in late 2000 that allowed DTAG to sell DSL at an extremely low price. Until 2002, DTAG offered DSL service at a retail price of 18 DM (around $8), while obligating each user to pay 50 DM (about $23) for an ISDN line[223] and another 32 DM (about $15) for Internet access if using T-Online. In addition, RegTP did not require DTAG to share its access lines with other DSL providers until 2002.

A few competitors in DSL

DTAG's principal competitor in DSL provision is QS Communications (QSC), which has the largest competitive broadband network in Germany. Established in 1997 and owned primarily by Baker Fund of the United States and its own employees, QSC offers DSL service in 46 German cities which have 20 million potential customers. QSC has a strategic partnership with Cable & Wireless to provide synchronous DSL (SDSL) services as well as a sales and marketing agreement with WorldCom, allowing it access to WorldCom's DSL network, which links 38 German cities, according to CIT Publications. Vodafone Arcor also offers DSL to business and residential customers in Germany.

Altogether, there are 34 facilities-based providers of ADSL/SDSL in competition with DTAG, and they provided a total of around 70,000 connections at the end of 2001, according to RegTP's *Annual Report 2001*. Only nine of these providers provide DSL service throughout Germany. The remainder operate in individual regions only. Competitive providers have a larger share of the market for high speed SDSL connections, generally favored by business, because this technology was not introduced by DTAG until the end of 2001. High data rate DSL (HDSL) services are offered by only 13 carriers, operating mostly on a regional basis, primarily for data transmission.

RegTP boosts competition in DSL

RegTP has taken several steps recently to address the concerns of alternative DSL providers and make Germany's DSL market more competitive. In December 2001, RegTP launched an investigation of DTAG's price for DSL. In response, DTAG raised its price by about 30 percent, so that as of spring 2002 its DSL cost €13 (about $12, not including $23 for the mandatory ISDN line), according to the German government. Shortly thereafter, RegTP concluded its investigation, finding no abuse of market power or predatory pricing.

In early 2002, the U.S. government raised with the German government its concern about DTAG's increasing dominance of the DSL market in Germany. The German government replied that RegTP had launched another investigation of DTAG on February 12, 2002, for imposing anti-competitive terms and conditions on its competitors in local loop access agreements. In addition, RegTP stated that it was imposing three conditions on DTAG to assure that the DSL market is open to its competitors:

< DTAG must permit its competitors to

[223]Because DTAG has stopped building analog lines, users that need installation of a new line must also pay for an ISDN line.

collocate their switches with those of DTAG;
< DTAG must offer its competitors shared access to its lines; and
< DTAG must reduce the backlog of orders for delivery of its local leased lines.

These new steps will bolster Germany's competitive DSL operators, but they come too late for some, such as Riodata, which filed for bankruptcy in March 2002.

Future of DSL in Germany

DTAG is expected to concentrate primarily on the consumer market in urban areas, while competing DSL providers concentrate on the rapidly growing SME market. In 2000, Accenture (then Andersen Consulting) projected the number of ADSL subscribers in the Germany's SME sector alone to surpass 2 million by 2004.[224] DSL is generally considered to have the potential for rapid growth in Germany for many years to come. Nevertheless, DSL still faces the same challenge in Germany as it does elsewhere, i.e., the need for "killer applications" to drive demand.

It may be difficult for alternative DSL providers to compete with DTAG now that DTAG has extended its dominance of the local loop into the DSL market. In the medium term, the only one of these alternate technologies that seems likely to provide strong competition to DTAG's rapid roll-out of DSL is broadband access over cable TV modems.

[224]Andersen's projection is cited in "Germany: Value-Added Telecommunications Services," *Industry Sector Analysis*, U.S. Dept. of Commerce/U.S. Commercial Service, Germany, 2000.

Cable modems at the take-off stage?

Cable TV networks are very widespread in Germany. In fact, Germany's cable TV penetration rate, 27 percent, is more than double the average in western Europe (12 percent). Nonetheless, cable modems provide only one percent of broadband Internet access in Germany.

This low figure is largely because, until 2001, cable TV networks in Germany were owned by DTAG. In 1999, DTAG decided to divest its interest in cable TV networks. After this point, DTAG had no incentive to invest in upgrading its cable TV networks to support interactive applications.

Germany's cable TV market was unable to compete with DTAG in providing broadband Internet access until 2001. Responding to anti-trust concerns, DTAG reached preliminary agreements to sell all nine of its regional cable TV networks to three companies by February 2001. Despite this step forward, four obstacles remain to rapid deployment of cable TV-based Internet access in Germany: strict regulation by the German Cartel Office due to anti-trust concerns, the huge investments (yet slow payback) necessary to convert existing cable TV networks to allow interactive communications, delays in the availability of TV set-top boxes to decode TV signals, and consumer resistance to paying for additional services delivered over cable TV.

Anti-trust rulings have affected the roll-out of broadband cable TV

The importance of anti-trust concerns was demonstrated recently by the Cartel Office's

veto of DTAG's largest deal to sell its cable TV networks. In February 2002, the Cartel Office vetoed the agreement of a U.S. firm, Liberty Media Corporation, to buy six of DTAG's networks after Liberty refused to alter its plans for the acquisition to satisfy a number of the Cartel Office's anti-trust concerns. For example, the anti-trust regulator said it could only approve the deal if Liberty upgraded the cable TV network to 862 MHz to also offer telephone and Internet access in competition with DTAG. Liberty was prepared to invest $7.2 billion to upgrade the system's capacity to carry additional programs by the year 2010, in addition to the acquisition cost of $4.9 billion, but it could not commit to do this as fast as the regulator wanted, according to the *Wall Street Journal*.[225] Liberty also was reluctant to give 100 percent assurance that it would accept the open interface standard for cable TV set-top boxes, based on the proposed standard for a multi-media home platform (MHP) developed by the European Standardization Council, as the German government requested.

The Cartel Office also objected to Liberty Media's plan to take over another company's network connecting directly to TV subscribers. The Cartel Office reportedly believed this would have given Liberty too much control over the German market (Liberty would have acquired 10 million cable TV subscribers, accounting for 60 percent of the German market).

As of June 2002, DTAG was negotiating with other bidders to sell these six cable TV networks, but new offers are likely to be valued considerably lower than in Liberty's offer because of the recent declines in cable asset values throughout western Europe, according to *Communications Week International*.[226]

Despite setbacks, broadband cable TV roll-out has begun

Despite these setbacks, broadband access via cable modems still has the potential to take off in Germany, although the market is rocky. Two firms, Callahan Associates and Klesch, have purchased and started operating the other cable TV networks of DTAG. These networks are comparable to the networks which Liberty sought to purchase from DTAG, in that they can only connect to TV subscribers by interconnecting with other operators' networks.

In 2000, Callahan, a consortium of mostly American investment groups, purchased 55 percent of DTAG's cable networks in two German states, North Rhine Westphalia and Baden Wurttemberg. Although DTAG owns the remaining 45 percent of these networks, it is not allowed to play an active role in Callahan's telecommunications decision-making, to avoid ant-trust problems. Klesch, a German company, acquired the DTAG cable network that operates in the German state of Hesse.[227]

Unlike Liberty Media, both Callahan and Klesch have accepted the open interface for TV set-top boxes. However, the technical specifications for a common MHP interface

[225]"Liberty Cable Deal is Rejected by German Anti-Trust Regulators," *WSJ*, February 25, 2002.

[226]"New Bidder for Telekom's Cable Favors the Coopetition Model," *Communications Week International*, March 4, 2002.

[227]Kirsch's network is known in Germany as iesy (eKabel - Kabel Hessen GmbH & co. KG).

that would allow subscribers access to encrypted transmissions is unlikely to be approved until late 2002, according to a Callahan executive. It is unclear when set-top boxes will be manufactured to comply with this standard.

The retrofit of cable TV networks by the new owners and other cable operators is already accelerating the offer of high speed Internet access by this medium in Germany. Already, more than 20 cable operators in over 30 German towns and cities offer high-speed Internet access via upgraded cable TV networks. By the end of 2001, 30,000 households were using this service and some 750,000 additional households could use it if they chose to, according to RegTP's *Annual Report 2001*.

However, the prospect for further roll-out of these networks is complicated by the apparent reluctance of subscribers to pay the extra costs necessary to access the Internet or telephone service over cable TV. One indication of this reluctance is the reluctance of most broadcast TV viewers throughout Germany to pay the extra cost of pay TV.

Nevertheless, Callahan acquired 6.4 million cable TV subscribers when it bought its networks, out of 13 million homes in its franchise area, according to *CIT Publications*.[228] Callahan is continuing to upgrade its cable network to offer interactive video, voice and data services. In February 2001, Callahan contracted with a consortium led by Nortel Networks to obtain the requisite broadband technology. Motorola will supply fiber optics to Callahan's network in Dusseldorf (in the state of North Rhine Westphalia), and be the main supplier in upgrading its network in Baden Wurttemberg. Callahan started providing telecommunications services over its cable networks in the autumn of 2001, offering what it describes as the first VoIP service in Germany. It planned to roll out interactive services in Baden Wurttemberg by June 2002, although this process has been fraught with technical, financial, and other difficulties, according to industry observers in Germany.

However, both Callahan and Klesch are scaling back their network upgrades, because it is difficult to finance them in the current uncertain economic climate. Callahan bundles the new services (both telecommunications and multimedia) so that they can be sold together with traditional, one-way cable TV services. By 2004, Callahan plans to cover 30 percent of the territory in the two German states that it serves, passing 80 percent of the households, although the entire network will not necessarily be interactive.

Callahan is basing its German operations on its U.S. model, using the same technology. This could offer many opportunities for U.S. suppliers, especially in its current effort to upgrade the existing cable network rapidly; it is investing almost $1.3 billion in Bonn and Cologne alone. Although Callahan does not produce the programming content that it transmits over its cable TV network, it does need to develop the demand for additional TV channels, in addition to the 33 channels that are provided over existing analog cable TV systems. The media authority of each German state government is responsible for assuring that there is a balance in the program content of a cable TV network, namely

[228]Headquartered in Cologne, Callahan's German subsidiary is known in Germany as ish GmbH & Co.

adequate shares of general interest and local programming, but this has not been a significant problem yet.

Other broadband technology platforms

Wireless local loop (WLL) has developed to be a significant broadband technology platform in Germany. Germany was one of the first countries in Europe to award spectrum to companies for WLL, receiving so much interest that it allocated spectrum in the 26 GHz band to numerous companies in three rounds between 1998 and 2000. One of the largest WLL players in Germany is Viag Interkom, which was awarded over 200 frequencies. In October 2001, Viag launched its WLL services under the "e-nfrastruktur" brand in 36 cities. Viag aims to serve primarily German SMEs, 80 percent of which it says to be located in the area for which it has licenses, mostly in the south and west of Germany.

Although WLL networks were deployed rapidly in Germany, they have had only limited success, as in other European countries. Only 2,000 to 3,000 customers were expected to be connected via WLL in Germany during 2001, according to *Communications Week International*. At least three German WLL operators have gone bankrupt, unable to compete with DSL, because WLL equipment costs much more than DSL equipment in Germany. In fact, a RegTP official told *Communications Week International* recently that RegTP plans to recall all unused spectrum from WLL operators and offer it in a new tender with no changes in the license conditions.

The satellite and digital TV markets of Germany have not yet developed as significant broadband providers, but they have the potential to do so eventually. Direct broadcast satellites (DBS) are already widely used in Germany for broadcasting TV directly to subscribers' residences, but they still use one-way, analog transmission. Private and public TV broadcasters in Germany are preparing to offer interactive, digital broadcasting, and they reached agreement in 2001 to support the same MHP standard as cable TV operators will use for an open interface on set-top boxes.
Powerline communications infrastructure is used by three companies to offer Internet access in four German cities. However, only some 2,000 households had broadband Internet access over powerlines by the end of 2001, according to RegTP.

Third driver: mobile communications

Germany has the largest mobile market in western Europe, accounting for 18 percent of the 310 million mobile subscribers in the region at the end of 2001, according to Kagan World Media.[229] As elsewhere in Europe, mobile communications has long been the fastest growing telecommunications service in Germany, and it is expected to continue driving growth in this market for the foreseeable future. Early in 2001, the number of mobile subscribers in Germany exceeded the number of wireline subscribers for the first time. By the end of 2001, there were 56 million wireless subscribers, compared to 52 million wireline subscribers. Germany's mobile penetration rate of 68 percent is slightly higher than the EU average. However, the growth rate in German mobile

[229]"World Cellular Census," Kagan World Media, March 31, 2002.

subscribers dropped sharply from 105 percent in 2000 to 16 percent during 2001, lower than the EU average of 20 percent during 2001.

Four significant mobile operators

There are four significant mobile network operators in Germany. Two have operated GSM networks since 1992: T-Mobile and D2 (which Vodafone acquired from Mannesmann in 1999). The other two GSM networks are operated by E-Plus (launched in 1994) and Viag Interkom (launched in 1998).

As mentioned earlier, DTAG is not nearly as dominant in mobile services as it is in wireline. In fact, only in 2001 did DTAG's subsidiary T-Mobile become the largest mobile operator in Germany. During 2001, the number of T-Mobile subscribers increased by 21 percent, allowing T-Mobile to overtake D2 Vodafone as the largest operator of a GSM mobile network in Germany with a market share of 41 percent, compared to D2 Vodafone's 39 percent. E-Plus has a 13 percent share of the German mobile market, and Viag Interkom has the remaining 6 percent.

Because of the sheer size of the German market, Germany's top mobile operators are among Europe's largest. As of November 2001, T-Mobile and D2 Vodafone were the second and third largest national mobile operators in Europe, with 22.9 and 22.0 million subscribers in Germany, respectively, exceeded only by Telecom Italia Mobile, according to Kagan World Media.[230]

Competition has lowered mobile prices

According to the German Federal Statistics Office, prices for mobile communications in Germany have declined by an average of nine percent annually since 1997.[231] Although this price decline was very steady from 1997 to 2001, this trend may not continue. During 2001, German operators began to change their focus from quantity to quality. Operators are now focusing on customer loyalty and revenue growth, instead of expanding the number of their subscribers at any price. One reason for this new focus is the need for additional revenue to fund next generation wireless networks, as elsewhere in western Europe.

Auction of frequencies for 3G wireless

In August 2000, RegTP introduced a new method of frequency allocation for licenses to offer 3G wireless communications services: an auction, as in several other EU Member States (further information on 3G in the EU is provided in Chapter 2). Until then, German frequency allocation had been accomplished through "beauty contests," through which the regulator allotted frequency for a nominal fee, based upon its assessment of applicants' business plans.

At an unprecedented combined cost of almost 100 billion DM ($46 billion), six of eleven pre-qualified applicants won these German 3G licenses (Figure 3-5). Four of the licenses were won by the country's four incumbent wireless operators: T-Mobile, D2 Vodafone, E-Plus, and Viag Interkom. With the exception of T-Mobile, these operators are all controlled by foreign investors: 100 percent of D2 is owned by Vodafone of the United

[230]Ibid.

[231]As cited in *RegTP: Annual Report 2001*.

Kingdom, 78 percent of E-Plus is owned by KPN of the Netherlands and the remainder by NTT DoCoMo of Japan, and 100 percent of Viag Interkom is owned by mm02 of the United Kingdom, according to Kagan World Media and CIT Publications. The other two licenses were awarded to Group 3G (a partnership, 57 percent owned by Téléfonica of Spain and 43 percent by Sonera of Finland) and MobilCom Multimedia (a German operator, 28.5 percent of which is owned by Orange of France), according to Kagan World Media.

Figure 3-5

GERMANY: 3G LICENSEES	
Telecommunications Operator(s)	**Amount (billions of dollars)**
T-Mobile	**$7.7**
D2 Vodafone	**$7.65**
E-Plus	**$7.62**
Viag Interkom	**$7.67**
Group 3G	**$7.63**
MobilCom Multimedia	**$7.6**

Source: World Markets Telecoms

As elsewhere in western Europe, Germany's 3G licensees plan to base their 3G wireless services on the standard developed for Europe, UMTS.

3G infrastructure sharing

The German 3G licenses obligate 3G network operators to roll out enough capacity to serve 25 percent of the population by December 2003 and 50 percent within three to five years of launch. After the downturn in global telecommunications markets, most of the German licensees urged RegTP to allow infrastructure sharing to reduce the costs of building 3G networks, due to widespread criticism by investors of the prices paid for 3G licenses and the operators' realization that they had paid so much for their licenses that it would be difficult to finance network construction.

RegTP acquiesced, announcing in June 2001 that 3G licensees could share certain facilities, but not their core networks or software. However, RegTP must approve each inter-company contract for such infrastructure sharing to assure that each operator maintains its operational independence from its competitors. 3G operators also may share facilities of other telecommunications and cable television operators if they do not offer 3G services. RegTP's president, Matthias Kurth, reported in April 2002 that four of the six licensees have infrastructure sharing agreements. Operators expect infrastructure sharing to reduce the cost of building 3G networks by at least 30 to 40 percent, according to press reports.

Delayed 3G roll-out

Despite the opportunity to share facilities, operators are postponing their dates for launch of 3G services in Germany due to both financial constraints and delays in the availability of handsets. In January 2002, DTAG announced plans to launch 3G services in the second half of 2003, significantly later than its original target date of January 2003. Its largest rival, Vodafone, is reported by the press to be planning its 3G roll-out in Germany for the second half of 2002, but at speeds reportedly less than full 3G speeds until 2005. E-Plus does not plan to

launch 3G services until 2004, according to *CIT Publications*.

These predictions for 3G roll-out are still optimistic, unless RegTP abandons its long-standing opposition to resale of 3G licenses to enable consolidation among the six licensees. Current licensing rules require that, in the event of a merger, mobile operators return their licenses and spectrum to RegTP.

Dearth of 3G handsets

Manufacturers are struggling to provide 3G handsets as soon as possible in Germany. After dissolving a partnership with Toshiba to manufacture 3G handsets together, Siemens has announced that it will purchase and resell Motorola's 3G handsets, rebranded as its own. CIT Publications reports that T-Mobile plans to invest €140 million ($122 million) to link some 20 German cities for its 3G network during 2002, procuring the network equipment for this project from Siemens. Nevertheless, a senior Siemens executive told the 3GSM show in Cannes during March 2002 that less than half of Siemens' announced agreements on 3G equipment for western Europe relate to solid contracts and the rest were "still open."

3G wireless is generally viewed in Germany and throughout Europe as able to offer broadband Internet access, but not bandwidth-intensive applications such as video-on-demand. What remains unclear is whether and when 3G wireless will be able to fulfill its theoretical capabilities.

The commercialization of 2.5G wireless

Although the launch of 3G wireless is behind schedule, interactive mobile communications are beginning to take off in Germany. Wireless access protocol (WAP) has enabled mobile Internet access in Germany since 1999, with over 170 companies offering WAP services over the portals of T-Online, D2 Vodafone, and seven other operators. There were around 2.5 million German WAP phone owners by 2000, nearly half of the total in western Europe. However, as elsewhere in Europe, WAP has been a failure in Germany because only a very small number of the most patient users have been willing to pay extra for its slow data transmission speed.

Nonetheless, operators are moving ahead with mobile Internet access in Germany via 2.5G technologies. Many are preparing to exploit general packet radio service (GPRS), currently the leading 2.5G technology in Germany. GPRS is widely viewed as the best test for acceptance of wireless Internet access in Germany and consequently the potential return on huge investments in 3G wireless.

All four of the significant German mobile network operators delayed launching GPRS throughout 2001, pending receipt of handsets. Reliable GPRS-enabled handsets were not available for mass marketing until early 2002. T-Mobile announced in February 2002 that it was offering international roaming on its GPRS network. Roaming should improve prospects for the success of GPRS, especially when possible between mobile operators, but the ultimate success of GPRS hinges on finding applications that appeal to the mass market.

A second 2.5G technology being rolled out in Germany for mobile Internet access is i-mode, NTT DoCoMo's platform for interactive services. I-mode was launched in Germany over the GPRS network of E-Plus in March 2002 by KPN Mobile, in partnership with NTT DoCoMo. KPN Mobile aims to sign up a million i-mode users in Germany, the Netherlands, and Belgium combined by 2003, according to CIT Publications.

A third 2.5G technology, enhanced data rates for GSM (EDGE), has not been rolled out in Germany yet because it would require new terminals and switches, making it more expensive than GPRS.

2.5G equipment

These developments in 2.5G wireless networks have important implications for the German telecommunications equipment market. For example, Nortel Networks won a contract to upgrade T-Mobile's network to the GPRS standard in October 2001, according to CIT Publications. Opportunities for various other kinds of wireless digital devices are suggested by the recent announcement of British mobile operator mm02 concerning a deal with Handspring, the second largest manufacturer of handheld PDAs, to introduce its Treo range of hybrid devices in the first quarter of 2002. Treo devices incorporate the functions of a PDA organizer and a mobile handset, and are to be used in mm02's networks in Germany, the United Kingdom, Ireland, and the Netherlands. GPRS also enables the use of products like the Blackberry, which are little known in Germany.

Boom in SMS

One indication of a potentially strong market in Germany for GPRS services has been the rapid growth of short message services (SMS) there, driven primarily by Germany's high mobile penetration rates. SMS traffic in Germany increased five-fold during the year ending May 2000. During 2000, Germany had the highest SMS usage rates in Europe. Currently, some three million SMS messages are sent per month in Germany, according to Reg TP, about 90 percent of which are voice mail notifications or person-to-person messaging. However, mobile operators in Germany do not earn much from SMS, which is considered a marketing tool.

Germany's mobile operators, similar to operators in other European countries, are hoping to profit from the next iteration of SMS, known as multimedia message services (MMS). For example, in January 2002, Ericsson announced an agreement with the world's largest mobile operator, Vodafone, to provide network infrastructure to support MMS in all of Vodafone's principal markets, including Germany.

Mobile Internet viewed as having a strong future in Germany

German mobile operators view mobile access to the Internet as a means of keeping customers and increasing revenues. They believe that mobile devices offer the opportunity to challenge the dominance of PCs in terms of Internet access because the penetration rate for mobile phones is already over twice the PC penetration rate in Germany, a predominance expected to continue for the foreseeable future. Operators

argue that the ability of mobile devices to connect to the Internet wherever the user is located offers an advantage over wireline access to the Internet and that mobile devices are also less expensive and easier to carry than PCs. Furthermore, a unique cultural issue may help drive mobile Internet access in Germany. Mobile devices are viewed as genuinely personal in Germany, unlike PCs, which are used in organizations, households or public places and often shared.

Mobile penetration still increasing...

Germany is one of the two European countries with the strongest potential for additional growth in the number of mobile subscribers, due to the disparity between its current penetration rate (68 percent) and its expected saturation level, according to ABN Ambro. Germany's saturation level for mobile penetration is expected to be even higher than for western Europe as a whole (forecast to be 83 percent), due to Germany's high GDP per capita and other socio-economic indicators.

...driven in part by mobile virtual private networks

One current trend driving further mobile penetration in Germany is investments in mobile virtual private networks (MVPNs). Germany and the United Kingdom were rated as the most attractive markets in western Europe in which to establish an MVPN, based on market potential, competitive opportunity, and insulation from supplier pressure, according to a January 2002 Pyramid Research report. For example, in December 2001, Tele2 of Sweden signed a deal to use Viag Interkom's mobile network to establish an MVPN in Germany, according to the World Markets Research Center. T-Mobile is reported to have signed at least one similar contract.

Other trends in mobile communications

Germany is also subject to broader trends sweeping across western Europe. As the German mobile market approaches saturation levels, operators are shifting their objectives from customer acquisition to customer retention and maximization of the average revenue per user. Since 2000, German operators have sought to differentiate themselves from their competitors to achieve these objectives. For example, as the owner of both fixed and mobile infrastructure, Viag Interkom offers its mobile service (called "Genion") as a substitute for its customers' wireline service.

Operators are focusing on content, m-commerce, and wireless LANs

In addition to limiting their costs, some German operators are trying to become more involved in, and make money from, mobile content. Many are trying to develop business models allowing them to avoid the role of operating "pipes," with no control over the content going through them, as is true of both wireline telecommunications operators and ISPs. They are exploring means of developing mobile e-commerce via SIM cards, already available with existing GSM phones in Germany. Germany also has a wireless payment system, named "paybox," which was established in 2001 and is 50 percent owned by Deutsche Bank. Paybox aimed to have a million customers signed up for its automated debit service and 100,000

merchants accepting its payments by the end of 2001, according to *Global Mobile.*

Indications of these new trends were provided in mid-March 2002, when T-Mobile announced separate agreements with Vodafone and Microsoft to enable it to offer new services, according to CIT Publications. It agreed with Vodafone to jointly develop an open platform for mobile payments, whereby the two firms would share a percentage of the transaction costs, like credit card companies. Vodafone is already testing an "m-bill" scheme in the United Kingdom, similar to that used by mobile customers when they pay to receive text messages such as weather reports. Through its agreement with Microsoft, T-Mobile plans to offer such services as access to corporate networks via mobile handsets in mid-2002. T-Mobile also plans to launch in late 2002 a customized version of Microsoft's Windows Smartphone 2002 software. The contract with Microsoft is the beginning of three years of cooperation between Microsoft and T-Mobile.

Wireless LANs (WLANs) are another growing mobile application in Germany, for which DTAG currently seeks to upgrade its own facilities. In the future, unlicensed WLANs may be integrated with traditional, licensed mobile services in Germany. DTAG announced such a global strategy in March 2002, after completing its acquisition of the MobileStar Network and VoiceStream Wireless of Bellevue, Washington.

New telecommunications regulatory framework in 2003

Convergence between telecommunications and information technologies was not taken into account when RegTP was established in 1998. Its mandate was designed for a different era, focusing primarily on legacy network issues such as preventing abuse of dominant position by the incumbent provider of basic voice communications. Nevertheless, German telecommunications law provides the same support for services competition as it does for facilities competition (based on network infrastructures).

In addition, since World War II, media policy (including cable TV) has been the responsibility of the state governments in Germany. However, it is becoming increasingly difficult to distinguish media policy from telecommunications policy, for which the federal government is responsible (i.e., RegTP). Furthermore, the efforts of DTAG to sell its cable TV networks to private operators have been complicated by strict anti-trust rules, enforced by the Cartel Office, another part of the federal government. RegTP currently does not regulate VoIP in Germany for two reasons: VOIP does not yet have an important share of the voice market and it is not real time (as are other telecommunications services). RegTP says that it regulates only that which "needs to be regulated," and it can not predict whether it will be necessary to regulate VoIP in the future.

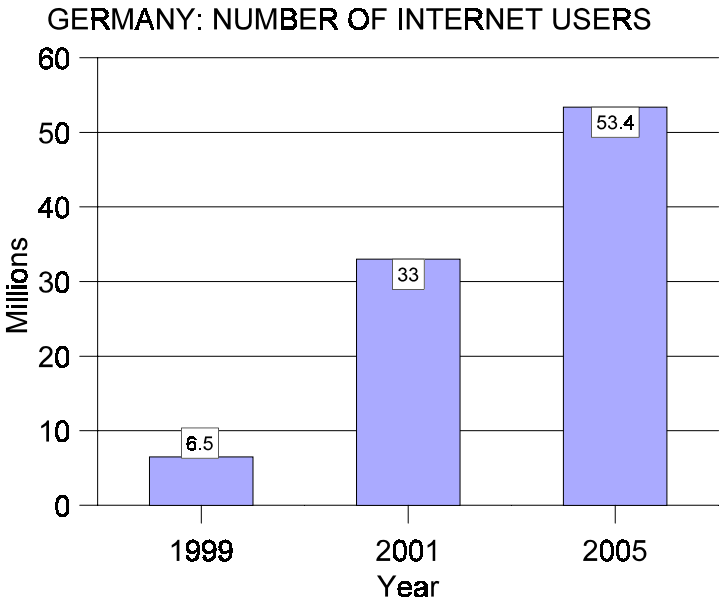
In February 2002, the U.S. government expressed concern to the German government about the need for a more effective and transparent regulatory regime. The German government responded that it plans to increase the transparency of its regulatory regime in a new telecommunications law that is being prepared to implement the new EU regulatory framework by mid-2003 (this

framework is detailed in Chapter 2). The new German law, like the new EU framework, is intended to provide a simpler and more integrated regulatory environment for all electronic communications that is technology-neutral, in recognition of technological convergence.

INTERNET USE

At 40 percent, Germany has one of the top Internet penetration rates in Europe, behind only the Scandinavian countries and the United Kingdom. Internet use in Germany has jumped nearly fivefold in the last two years, from 6.5 million users in 1999 to 33 million in 2001, according to the *EITO 2002* report. EITO expects the number of German Internet users will rise at a CAGR of 15 percent to 53.4 million in 2005 (roughly 64 percent of the population) as use of the Internet by businesses and individuals grows (Figure 3-6).

Figure 3-6



Source: EITO 2002

Nonetheless, compared to the United States, which has a 54 percent Internet penetration rate, German Internet usage is limited. While Germany ranks second behind the United States globally in origination of web traffic, Germany's 5.6 percent share pales next to the U.S. share of 45.0 percent of web traffic origination.[232] Industry representatives report that although many younger Germans have a more positive attitude towards the Internet and the government has been promoting Internet use in a major way, older Germans, even those in their 30s and 40s, are still reluctant to use it.[233]

[232]"Germany: E-Commerce Brief," U.S. Department of Commerce/ U.S. Commercial Service, Germany, 2001.

[233]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

T-Online, Germany's most popular ISP, also owns the most popular portal, t-online.de. According to Jupiter's MMXI report, in December 2000 t-online.de had more than 7.2 million users, followed by yahoo.de and msn.de. Currently, German home Internet users tend to use the Internet for checking e-mail and do not surf content or use e-commerce as much as their counterparts in the United States. According to German industry representatives, many Germans surf the Internet from work to save money.[234]

Business Internet use

The recent uptake of the Internet among German firms has been rapid. Even in late 2000, businesses' Internet use was not very widespread, according to industry representatives. Many managers, used to using client-server and LAN-based technologies, reportedly distrusted the Internet. By late 2001, German businesses had vastly changed their thinking regarding the Internet, contributing to its rapid recent adoption. Traditional German firms have learned over the past few years that they needed to invest in technologies to remain competitive with their rivals in Europe and elsewhere, many of whom have invested in the Internet. German firms also realized during 2001 that the Internet could solve many of their "old economy" problems, through communication and information gathering, and business Internet use has taken off.[235]

Approximately 96 percent of German SMEs have Internet access, using it mainly for e-mail and searching for information. Seventy percent have a web site, a radical increase from less than 4 percent in 1999.[236]

Household Internet use

Slightly less than 40 percent of German households had Internet access in 2001, according to the European Commission.[237] Although the penetration rate grew ten percentage points from October 2000, various factors keep home Internet use low.

A major factor is a relatively low home PC penetration rate, only 38 percent in 2001.[238] Metered local telephone calls and a lack of flat-rate dial-up Internet pricing, except for the recent offering of AOL/TW, discourage some households from subscribing to Internet services, since each minute on the Internet costs money. In late 2001 the combined cost of Internet access and local phone calls averaged 2 *pfennigs* (7 cents) per minute. Because of a lack of competition in local telephony market, as discussed earlier, DTAG's prices for local phone calls have actually risen since the late 1990s.

Another factor is limited home broadband deployment. The overwhelming majority of Germany's home Internet users connect via narrowband– approximately 50 percent via analog modems, and 46 percent via ISDN. Only two percent of home users use DSL, and one percent use cable modem, according to Jupiter's MMXI Enumerator Study.

As these factors are addressed, home Internet use is climbing. German consumers have

[234]Ibid.
[235]German industry representative, interview by USDOC staff, Hamburg, Nov. 12, 2001.
[236]"Germany: Software for E-Commerce."
[237]"eEurope 2002: eEurope Benchmarking Report."
[238]Ibid.

increased their PC purchases as system prices have fallen, to take advantage of new home software such as games, and because of their desire to get online. Home broadband use is growing, albeit incrementally. Approximately 95 percent of home broadband in Germany is via DTAG's DSL, one percent is via competitors' DSL, and 3 percent is via cable modem, according to RegTP's *Annual Report 2001*.

Internet use in German schools

Connecting schools to the Internet has been a priority of the German government, at both the federal and state levels, and in the late 1990s the German government announced plans to connect all German schools to the Internet by 2001. This plan has succeeded. The government announced in late 2001 that all German schools had Internet access, up from only 16 percent in 1999. However, in 2001 there were fewer than four PCs connected to the Internet per 100 German pupils.[239] All states have programs to improve schools' Internet usage and to train teachers on using and teaching with the Internet. As in the United States, IT suppliers have donated hardware and software to German schools to support these efforts.

The government promotes Internet use

The German government has been eager to see the Internet and e-commerce take off in Germany to increase the country's competitiveness, energize the economy, and provide jobs in the face of high unemployment. The government, especially at the federal (national) level, has made large strides over the past few years in helping increase Internet use within Germany. Successes to date include the school-focused efforts, mentioned above.

Initiatives continue. The most high-profile recent one, the D21 Initiative, is a public-private partnership that was spearheaded by German industry leaders (including the German subsidiaries of the U.S. firms IBM, AOL/TW, and Cisco), who feared that the slow adoption of the Internet and e-commerce in Germany would cause it to fall behind other countries.[240] These executives felt that government policies and inaction were keeping Internet use low and wanted to put e-commerce issues higher on the political agenda. Some of D21's actions include advertising the existence of public Internet access points and training people how to use the web, which has been welcomed by many employment agencies.

The German federal government has released an outline of its "Road to the Information Society" program to make Germany an "information society," which includes making the government more efficient via using e-commerce in procurement and other government processes.

The German government is cognizant that security concerns have been a large impediment to greater use of the Internet and e-commerce in Germany. To this end, it is working with local chambers of commerce and associations to build a computer emergency response team (CERT) program, similar to that in the United States, that will

[239]"eEurope 2002: eEurope Benchmarking Report."

[240]"Germany: M-Commerce," *Industry Sector Analysis,* U.S. Department of Commerce/ U.S. Commercial Service, Germany, 2001.

track and alert business about viruses and other potential IT security problems and provide instructions on how to resolve them. Germany's CERT program is expected to be launched in mid-2002, and the service reportedly will be very cheap or free for the first few years to encourage its use and therefore build up confidence in the Internet among the German population.[241]

The government also has taken significant steps to address a major complaint of many German firms in recent years about a lack of qualified IT personnel, similar to the situation cited by the IT industry in the United States. To alleviate this problem, the German federal government recently changed its visa laws to allow foreign computer programmers and other IT specialists to work temporarily in Germany. Many German firms have hired programmers from central Europe under this program.

Opinions on some of the government's efforts thus far have been mixed. Some German industry observers state that the D21 Initiative has been quite influential in encouraging greater IT and Internet use. They state that the high level of interest in promoting the Internet by current German Chancellor Schroeder (who announced in September 2001 his desire to be viewed as the "Internet Chancellor") assures that much progress will be made in the future. Others are more skeptical, pointing out that similar high-level campaigns in recent years did not have as much success as their organizers intended. Some German IT industry executives believe that many German government policy-makers are out of touch with the "information age" and do not fully understand the issues at hand.[242]

E-COMMERCE

Germany has one of the world's most sophisticated e-commerce markets and ranks among the top European countries in terms of online sales, along with the Scandinavian countries and the United Kingdom. Germany's total B2B and B2C e-commerce revenues were valued at €44.9 billion in 2001 ($39.5 billion), according to *EITO 2002* (Figure 3-7).

E-commerce is expected to grow in Germany as Internet access becomes cheaper and more widespread. Further, the introduction of the euro is expected to make pricing more transparent and payments simpler, allowing for German companies to use e-commerce to take greater advantage of economies of scale. EITO predicts that total e-commerce revenues will rise at a 77.6 CAGR through 2005 to €447.1 billion ($393.4 billion) (Figure 3-7). Nonetheless, Europe's multiple languages mean that German firms who want to create economies of scale throughout the region in e-commerce, both B2B and B2C, will continue to face major challenges.

[241]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

[242]Ibid, and "Germany: M-Commerce."

M-commerce?

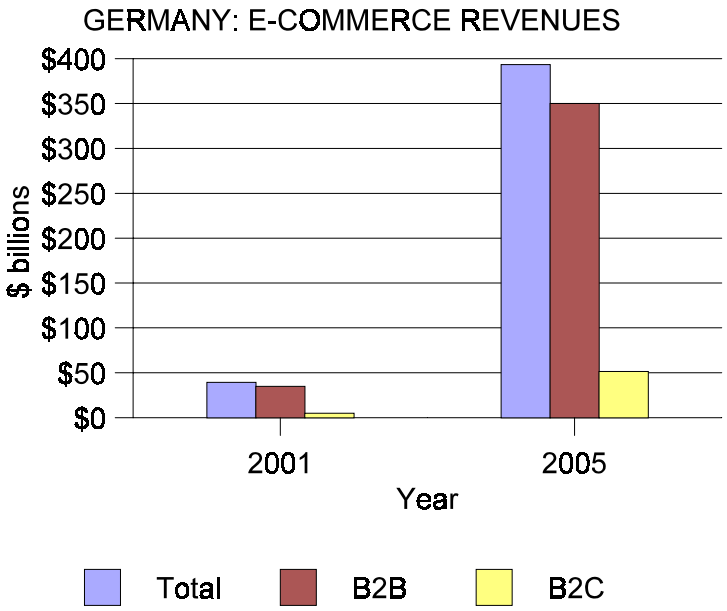
Mobile commerce is still in its infancy in Germany, and overall services are still in the testing phase. Nonetheless, mobile commerce is expected to have revenues of $13 billion in 2004 in Germany, the majority of which will be via B2C ($9 billion). [243]

B2B e-commerce is gaining in usage

The *EITO 2002* report valued Germany's B2B e-commerce revenues at €39.7 billion ($34.9 billion) in 2001. B2B e-commerce use is growing as German firms realize it can boost their competitiveness, as younger, more IT-savvy Germans move into management positions, and as larger globally active German firms use e-commerce to interact with their disparate offices, partners, and suppliers. *EITO 2002* predicts that B2B revenues in Germany will rise at a CAGR of 76.9 percent to reach €388.6 billion in 2005 ($350.0 billion) (Figure 3-7).

Although approximately one third of Germany's large companies already have implemented B2B e-commerce solutions, a 2001 survey by the German research and consulting firm Putz and Partner found that only one third had a strategy to drive their e-business investments.[244] However, in 2001, large German firms began investing in e-business strategies, resulting in a growth in e-business strategy consulting. One industry representative claimed this has increased 200 percent.[245]

Figure 3-7



Source: EITO 2002

Large German firms are investing in technologies that can augment their relationships with critical partners. As in the United States, many German firms are creating distinct, secure areas on their intranets/extranets for customers and distributors to track orders, stock management, and the like. However, firms are foregoing e-business technologies not deemed critical.[246] For example, enterprise portals, common in the United States, are not as popular in Germany. Some German firms, such as auto dealers, have enterprise portals to interface with U.S. customers, but most German firms are reluctant to invest in these portals, citing lack of demand. Germans

[243]"Germany: M-Commerce."

[244]Putz & Partner, interview by USDOC staff, Hamburg, Nov. 13, 2001.

[245]German industry representative, interview by USDOC staff, Berlin, Nov. 7, 2001.

[246]German industry representatives, interviews by USDOC staff, Hamburg, Nov. 12-13, 2001.

simply do not spend as much time looking up information on the Internet as Americans.[247]

As elsewhere, typical German B2B e-commerce users are large companies with widely dispersed global distribution chains. Key B2B vertical industry end-users are IT and telecommunications, financial services, automotive, aerospace, chemicals, electronics, and steel. German companies that engage in e-business spend approximately two percent of their revenues developing their e-commerce capabilities and generate approximately 17 percent of their revenues online, according to German consultants Putz and Partner, who predict this will rise to 30 percent of all revenues by 2003.[248]

Because many German firms planned their IT budgets in 2000 and 2001 around the euro conversion and related projects, and also because of German firms' initial slow pace in buying e-business technologies, there is a pent-up demand for e-commerce solutions among many German firms.[249] Some analysts state that because German firms were so methodical in their e-commerce investments, the Internet crash has not affected German firms to the extent that it has many firms in the United States, who rushed to buy technologies from emerging start-ups only to see the technologies, and the vendors, fail. As a result, German firms could be more successful with these investments than many of their U.S. counterparts. Hurdles remain, however. For example, approximately one third of German companies' purchasing departments do not have Internet access.[250]

SMEs and e-business

Only approximately 11 percent of German SMEs engage in B2B e-commerce. In fact, extranet use by small German firms is very limited. Some German government sources observe that the supply chain concept, integral to B2B, has been lacking in Germany. Many smaller German firms, with the exception of firms in the auto industry, do not view themselves as part of a supply chain, as do U.S. firms that are well networked to suppliers and purchasers. This view has helped hinder e-commerce use by German SMEs. Although large firms slowly are pressuring smaller German firms to interact online, Putz and Partner's 2001 survey found that almost no middle-sized German firms had an e-business strategy.[251]

Businesses have security concerns

Although not nearly as pronounced in B2B as in B2C, security concerns exist among German businesses regarding online transactions. Increasing use of electronic signatures is expected to help allay security concerns. Electronic signatures have been permitted for use in Germany since 1998, when the telecommunications regulator RegTP established an Electronic Signature Certification Authority to grant key certificates to private certification authorities

[247]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

[248]As cited in "Germany Becomes Increasingly Wired," Nua Internet Surveys, February 19, 2001.

[249]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001, and "Germany: Software for E-Commerce."

[250]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

[251]Putz & Partner, interview by USDOC staff, Hamburg, Nov. 13, 2001.

so that they, in turn, can assign signature cards to users. In addition, the implementation of the EU Electronic Signatures Directive into German national law in May 2001 is expected to encourage greater use of B2B e-commerce in Germany by increasing confidence in electronic transactions. However, industry representatives believe it will take some time to raise consciousness about the importance of digital signatures in the higher levels of German management.[252] The forthcoming German CERT program also is expected to help allay firms' concerns about online transactions.

B2C e-commerce: significant for Europe, but growing slowly

Germany's 2001 B2C e-commerce revenues were €5.7 billion ($5.0 billion), according to *EITO 2002* (See Figure 3-7). Germany leads the rest of Europe in B2C e-commerce use. Online stores are gaining in popularity, and the Hamburg-based retailer the Otto Group (which owns Spiegel catalogs) is the world's second largest online retailer, based on sales figures, after Amazon. Currently, B2C e-commerce purchases in Germany are similar to those in the United States– the most common purchases are books, music, toys, hardware and software, electronics, and travel-related services.[253]

However, compared to the United States, B2C e-commerce use in Germany remains limited. Germans have not yet warmed to Internet shopping. Many Germans reportedly do not see compelling reasons for purchasing online. Instead, many young Germans use the web to download music and software, while older Germans use the web for information, such as for travel, business, and lifestyle-related subjects.

Not only is demand limited, but B2C offerings are limited as well. In 2001 only about 18 percent of large German enterprises, and 9 percent of German SMEs, used B2C e-commerce solutions. Despite these obstacles, predictions are optimistic. EITO expects Germany's B2C e-commerce revenues to rise at a CAGR of 82.6 percent through 2005 to reach €58.5 billion ($51.5 billion) (See Figure 3-7).

Factors hampering B2C include low home Internet use...

One main factor limiting B2C e-commerce in Germany is low household Internet use. This is due to local phone charges, limited flat-rate dial-up Internet access (both of which discourage browsing), and low home broadband penetration.

...very strong security concerns...

Security concerns, very prevalent among German consumers, are another major hurdle to greater B2C e-commerce use. Many German consumers are uncomfortable with the security of online transactions and the reliability of electronic payments.

Germans also are extremely sensitive about the protection of their personal data, and fear its misuse by online merchants or others, much more so than U.S. consumers. Industry participants interviewed in Germany report that German consumers seem not to be quite

[252]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.
[253]"Germany: E-Commerce Brief."

as concerned about the protection of their personal data in the aftermath of the terrorist attacks of September 11, 2001.

Nonetheless, a lack of consumer confidence in how B2C vendors might abuse personal data remains strong, and consumers want to see that B2C websites have privacy policies. Some industry representatives believe the German government could do more to make the security of the Internet more widely known.[254]

...strict consumer privacy regulations...

German personal data protection laws traditionally have been among the strictest of any European countries. Personal data, namely any personal or factual information related to a determined or determinable individual, is generally considered as private. Consumer privacy in Germany is primarily governed by the Federal Data Protection Act (Bundesdatenschutzgesetz - BDSG) of December 1990, which has been amended several times. The most recent major amendment dates from May 2001 and (somewhat belatedly) implements into German law the 1995 EU Data Protection Directive (described in Chapter 2).

...and low credit card usage

The lack of an e-commerce payment system geared toward German habits also has been a major impediment to the growth of B2C e-commerce in Germany. B2C e-commerce originated in the United States, a very credit card-centric society. Unlike the United States, there is relatively little credit card use in Germany. Germans do not like using credit cards– they have concerns about credit card security and generally dislike assuming debt. Further, they do not like giving out personal data when using a card, fearing a loss of anonymity, or worse, its misuse.[255] In addition, Germany's strict data protection laws do not allow the easy transfer of personal data between entities, which affects the transfer of credit card data electronically.[256]

In contrast, the most common non-cash payment method in Germany is the EC card, which has a magnetic strip and draws money from the user's bank account, similar to a debit or ATM card. Bank account information must be provided at the time of an EC card transaction, which contributes to the cards' security. Smart cards, with embedded computer chips that allow the user to add money to the card, also are popular, particularly because they are more secure than EC cards in terms of personal data (none is required for a transaction to take place).

E-commerce content providers and technology vendors have been testing various strategies to take account of German payment methods. Vendors have tried to encourage the home use of EC or smart card terminals connected to PCs, but such terminals are not commonly used. Invoices and bank debits are commonly used for B2C e-commerce transactions in Germany.

[254]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

[255]Ibid.

[256]In fact, credit reporting firms such as Equifax or TRW are illegal in Germany.

Online banking: an anomaly

Paradoxically, online banking is extremely widespread in Germany. In fact, Germans are the heaviest European users of banking and financial websites, and Germany is much further ahead in the use of online banking than the United States. An estimated 12 million Germans (15 percent of the population) banked online in 2001. Deutsche Bank reported in early 2002 that research firms estimated that this number will grow to between 22 million and 30 million Germans in 2006.[257]

The popularity of online banking would seem inconsistent with Germans' concerns about security in Internet transactions (described below). However, Germans are accustomed to banking electronically thanks to a decade-old, proprietary, non-Internet-based system called GIRO, run by DTAG. Under GIRO, banks' electronic infrastructures were standardized and linked to each other and to homes via dedicated, secure IT systems. Although German banks still offer GIRO-based online banking, to cut costs in recent years they have moved many online processes to the Internet. Thus, even though many Germans believe that Internet-based banking is not as secure as the GIRO system, they are accustomed to conducting home banking electronically and continue to do so as banks have migrated their processes to the Internet. German banks are investing rapidly in technologies to optimize e-banking, closing branches as they do so. The use of Internet-based online banking is expected to increase dramatically in Germany.[258]

E-government

Although it lags the sophistication of some of its European counterparts, the German government's use of online technologies has advanced rapidly during the last few years. Even just two or three years ago, the German central government's use of the Internet was very limited. For the most part, forms could not be filed electronically, websites were few, and German government officials often did not give out their e-mail addresses. In 1999, the government announced a concerted effort to increase its own Internet use.

All government agencies at the federal and local levels now have e-mail and websites, and the government is trying to improve the quality of services it offers to the public online. According to *EITO 2002*, the German government has completely automated three of its key services: corporate tax declaration and notification, submission of statistical data, and customs declaration. Its VAT declaration and notification and public procurement procedures are in the process of being automated.

Nonetheless, the German government's online interaction with businesses and citizens is low. One reason is that there is pressure on the government to "get it right," particularly in the area of secure Internet systems, to help raise the public's confidence.[259] The German government does not yet use e-procurement vis-a-vis its suppliers. The Federal Ministry

[257]"Banking Online in Deutschland," eMarketer, March 27, 2002.

[258]German industry representatives, interviews by USDOC staff, Berlin and Hamburg, Nov. 7-13, 2001.

[259]Ibid.

of the Interior's planned "Procurement Online" project, expected to be ready in 2002, will be the first real government-to-business (G2B) project in Germany.

Although the federal government has other small e-procurement projects, they are not as successful as this one appears to be (even in the planning stages). One reason is technical. E-procurement software on the market reportedly is not ready for German government procurement rules.[260] Another reason is organizational. Unlike the Ministry of the Interior, which is an exception, many government ministries do not have centralized procurement offices and processes.[261] Further, German government entities still have major concerns regarding e-commerce, mainly for security reasons. Nonetheless, German firms report that they would welcome increased G2B opportunities.[262]

According to industry representatives, online interactions between government agencies and German citizens are limited for various reasons.[263] A large issue is security concerns. One major government IT vendor reported that 85 percent of German individuals fear doing business with the government over the Internet for security reasons. Further, the government reportedly has not really consulted with its citizens about what types of government services they would like to use over the Internet, and thus offerings currently may not match what citizens need. The government is trying to implement an online tax filing program, but reportedly is having internal technical problems, so the system was not yet in use as of June 2002.

These challenges notwithstanding, the German government is forging ahead to offer many more services over the Internet in the future. German federal, state, and local governments are planning to launch a portal, bund.de, offering a package of administrative services to citizens. To comply with the European Commission's demands (described in Chapter 2), the German federal government has kicked off its "Bund-Online" program, with the goal of making all government services available on the Internet by 2005. The Federal Interior Minister announced in December 2001 a budget of €1.7 billion ($1.5 billion) for implementing Bund-Online from 2002 to 2005, according to *EITO 2002*.

[260]One small German software firm estimated that it would take 1,000 to 2,000 person days to change its procurement software to make it ready for government use. German industry representative, interview by USDOC staff, Nov. 9, 2001.

[261]Ibid.

[262]"Germany: Software for E-Commerce."

[263]German industry representative, interview by USDOC staff, Nov. 9, 2001.

CHAPTER 4: FRANCE

FRANCE 2001		
Population and GDP	Total Population	60 million
	GDP Per Capita	$21,682
IT Market	IT Services	$24.9 billion
	IT Hardware and Software	$24.8 billion
Personal Computers	Total	million
	Penetration Rate (Per 100 Inhabitants)	30%
Telecommunications Market	Telecommunications Services	$27.2 billion
	Telecommunications Equipment	$12.4 billion
Wireline Subscribers	Total	35 million
	Penetration Rate (Per 100 Inhabitants)	58%
Wireless Subscribers	Total	36 million
	Penetration Rate (Per 100 Inhabitants)	60%
Telecommunications Investment	Per Capita	$619
Cable TV	Total Subscribers	2.9 million*
	Penetration Rate (Per 100 Inhabitants)	4.8%*
Internet	Total Users	21.7 million
	Penetration Rate (Per 100 Inhabitants)	36.4%
E-Commerce	Total B2B and B2C	$18.6 billion

Sources: U.S. Department of Commerce, CIT Publications, IDC's April 2002 Black Book, ART, Reed Electronics Research, Government of France, EITO 2002.
* 1999 Figure

ECONOMIC AND POLITICAL SNAPSHOT

The French economy is the world's fourth largest and accounts for about 17 percent of western Europe's GDP. France is the United States' ninth largest global trading partner. France's average annual GDP growth rate increased from 1.9 percent between 1981 and 1997 to 3.1 percent between 1997 and 2000. The growth in the French economy slowed in 2001, when it expanded only 2 percent, and it is expected to slow further to a growth rate of 1.6 percent in 2002, according to the European Commission's spring 2002 economic forecast. This slowdown has been caused in part by the economic downturn in the United States, one of France's leading

export markets. The European Commission predicts that the French GDP growth rate will increase to 2.8 percent in 2003, helped in part by the expected rebound in the U.S. economy.[264]

Although France has a "social market" economy that largely follows free-market principles, it has extensive government regulation and generous social welfare protections. France is a republic whose executive branch is represented by a President, elected every five years, and a Prime Minister, who is appointed by the President. The legislative branch is represented by the "Assemblé Nationale" (Congress) and the Senate. If the Congress is dominated by political opponents to the President, the President has to appoint a Prime Minister who belongs to the opposition and transfer most of his authority to him/her. The President's authority would then be limited to matters dealing essentially with Foreign Affairs and National Defense. This was the case between 1997 and 2002, with Conservative President Jacques Chirac and Socialist Prime Minister Jospin.

Chirac was re-elected in May 2002, and he appointed Jean-Pierre Raffarin as Prime Minister. Under Chirac's leadership and the creation of a unified right-wing group, the UMP (the "Union for Presidential Majority," which does not include the far-right "Front National"), Conservatives now have a majority of seats in the French Parliament. For the first time since 1980, when President François Mitterand was first elected, French Conservatives control both the Executive and the Legislative (Congress and Senate) branches of government. This should facilitate the bringing about of Chirac's campaign promises over his five-year mandate.[265]

INFORMATION TECHNOLOGY

Third largest IT market in the region

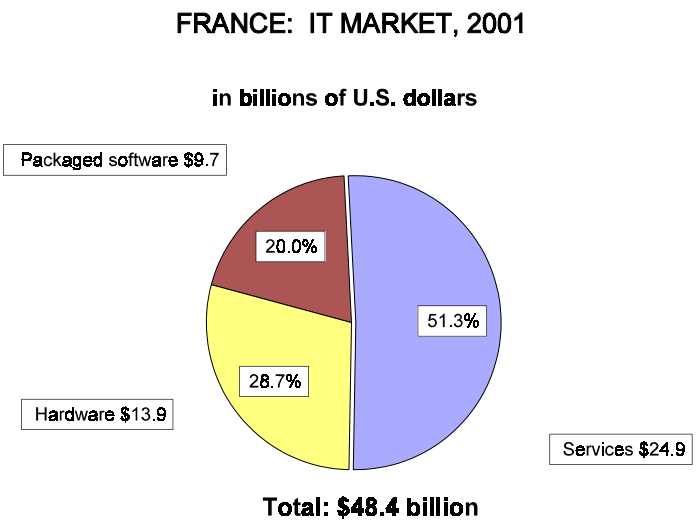
France has the third largest IT market in western Europe, after Germany and the United Kingdom. France's IT market– including computer hardware, packaged software, and IT services– was valued at $48.4 billion in 2001, representing approximately 17 percent of the total western European IT market, according to IDC's April 2002 Black Book.[266] IT services made up slightly more than half of France's IT market and were valued at $24.9 billion. Computer hardware, including local-area- and wide-area-networking equipment, was the next largest segment, accounting for approximately 29 percent and valued at $13.9 billion, while the packaged software market comprised 20 percent and was valued at $9.7 billion (Figure 4-1).

[264] "Economic Forecasts, Spring 2002."

[265] For more information on France's overall commercial environment, see the U.S. Government's most recent France Country Commercial Guide (CCG) at http://www.usatrade.gov/Website/CCG.nsf/ShowCCG?OpenForm&Country=FRANCE

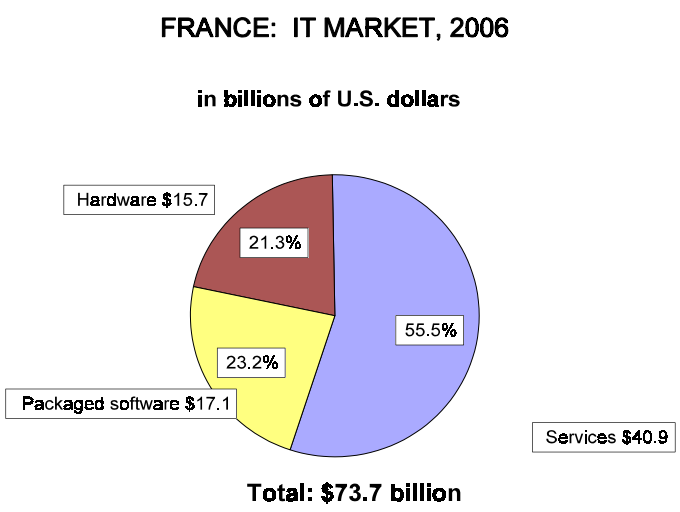
[266] *IDC Worldwide Black Book*, IDC, April 2002.

Figure 4-1



Source: IDC, April 2002 Black Book

Figure 4-2



Source: IDC, April 2002 Black Book

The current global economic slowdown so far has affected France's IT market to a lesser degree than that in the United States. France's IT market is projected to grow at a compound annual growth rate (CAGR) of 9.3 percent through 2006 to $73.7 billion. Like in Germany, the French packaged software market segment will grow the most rapidly, at a CAGR of 13 percent, to reach $17.1 billion in 2006. The French IT services market will grow at a rate of 10.1 percent, to reach $40.9 billion, and the hardware market will grow at a slow rate of 3.9 percent to $15.7 billion. The French IT market will continue to comprise 17 percent of western Europe's IT market in 2006 (Figure 4-2).

France's predilection for new technologies should not be underestimated

Despite the size of their market, the French tend to lag behind northern European countries in the adoption of new technologies, including those related to the Internet. Although much of this lag can be explained by the recession of the 1990s and other factors, it is primarily of a cultural nature. French businesspeople, industry observers, and analysts interviewed in Paris agreed that generally speaking, the French take more time to convert to new technologies than their foreign counterparts. However, after a lag, the French often make up for lost time with a faster technology adoption rate. They often end up becoming international market leaders in these very technologies.[267]

[267]French businesspeople, industry observers, and analysts, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

In fact, France is considered very technology-savvy in terms of both IT consumption and production. The French are extremely inventive, having pioneered leading-edge technologies such as the "TGV" high-speed train, the asynchronous transfer mode (ATM) communications topology, and high-speed Internet-access digital subscriber line (DSL) technology. Years before the Internet was widely used commercially, millions of French were regularly using online services through the French proprietary "Minitel" system, which was implemented on a nationwide scale in the early 1980s. The French designed the first smart cards and remain world leaders in this field. The Hollywood movie industry has noted France for its expertise in digital effects as they apply to the motion picture industry.

IT investments were low for much of the 1990s...

IT investments, particularly infrastructure upgrades, were depressed by French organizations for much of the past decade for various reasons. A major factor was macroeconomic. The French economy went through in-depth structural changes in the 1990s in an attempt to prepare for the country's integration into the EU Single Market. During this period, many French firms had other, more pressing concerns than IT spending. Larger firms were particularly concerned with forming and managing mergers and acquisitions necessary to reach the minimum size required to survive, much less compete, within the pending Single Market.[268]

In addition, caused in part by these macroeconomic changes, France experienced a recession that began in 1990 and from which the country did not fully recover until 1996-1997. During this time, French firms essentially put a freeze on IT spending. Although budgets loosened after the recession ended, in the late 1990s French IT budgets were focused on two things: preparing their databases and other internal systems to handle the transition to the euro, and Y2K remediation. French industry observers add that IT investments generally were not considered to be very important by French managers until the mid- to late 1990s.[269]

As a result, French firms are behind many of their European counterparts in the use of many information technologies. France's PC and Internet penetration rates are low in comparison to other western European countries.

...but are much stronger today

In the past few years, things have changed. Major capital is finally available to spend on IT, and attitudes toward IT spending are changing. French firms from all industries discovered in the late 1990s that competition, particularly in Europe, was getting stronger, and that they needed to develop sophisticated information technology tools, such as databases and database mining capabilities, to compete.

As a result, France is in the process of closing the technology gap with its European neighbors and the United States. In fact, according to IDC's April 2002 Black Book,

[268]Ibid.

[269]French industry observers, interviews by USDOC staff, Nov. 14-16, 2001.

France's 2001-2002 IT spending growth rate, 6.8 percent, has overtaken that of Germany (4.7 percent), and the United Kingdom (5.9 percent). France's ratio of IT and telecommunications spending to GNP rose from 4.2 percent in 1995 to 5.0 percent in 2000, and it is predicted to grow to 5.8 percent in 2005, according Syntec Informatique, the French trade association of software and services firms.[270] France's IT spending per capita in 2001 was $828 per capita, compared to $774 per capita in Germany, and the EU average of $707, according to IDC's April 2002 Black Book.

Nonetheless, IT spending has contracted, and must be justified

The sea change in attitudes and growth in IT investments notwithstanding, industry observers report that, although the French economy has not been hit fully by the U.S. recession, the French economy has slowed and French firms are being careful about their IT spending. Like in Germany, CEOs reportedly are concerned about costs, and information systems (IS) managers must convince their bosses that IT spending remains important.[271]

Trends in technology investments

French firms are investing in intranets and extranets, software, security and e-commerce solutions, and systems integration and consulting services. The government is increasing its own IT investments as well, and the national government is on par with other European governments in terms of its use of computers, intranets and the Internet.

Because of France's lag in investing in many leading-edge Internet and e-commerce technologies, some analysts believe that, similar to Germany, the Internet crash has not affected French technology spending as negatively as it has the United States. Far fewer French firms than their U.S. counterparts rushed to buy leading-edge technologies in the late 1990s and in 2000. Generally speaking, France's large-scale investments in many of these technologies began only a few months before the Internet bubble crashed in the United States. Many unsuccessful Internet and e-commerce-related experiments that took off in the United States, financed by the Internet bubble here, never occurred in France. As a result, French firms have experienced fewer technology and vendor failures, and may be better prepared to continue with IT investments. French firms are launching only those Internet and e-commerce projects with a reasonable chance of success.[272]

Software and services lead IT spending

As the French economy recovers, most spending growth is expected to be in software and IT services. Demand in these segments is exploding as French enterprises seek to optimize their intranets and extranets, and upgrade their Internet and e-commerce activities, to achieve productivity gains and improve customer services. Syntec Informatique predicts the combined revenues

[270]Data received from Syntec Informatique, Paris, Nov. 16, 2001.

[271]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[272]Ibid.

for software and computing services firms in France, which it valued at €30 billion ($26.4 billion) in 2000, will increase by 7 to 10 percent in 2002.[273]

France has been a major early adopter country and front-runner in Europe in the use of business intelligence technologies. As a result, analytical applications, including customer relationship management (CRM), financial, operations, and production analysis applications and tools were a continued major software growth area in 2001, according to the European Information Technology Observatory's 2002 yearbook (*EITO 2002)*.[274] Other software and services growth areas are supply chain management (SCM), web site development, IT security, e-business/e-procurement, and embedded software. Demand for intranet software and services is very high– these markets were estimated to be $1.5 billion and $2.8 billion in 2001, respectively.[275] Leading vertical industry purchasers of software and related services in France are manufacturing, energy, banking and insurance, the public sector, services, and transportation.[276]

... particularly security solutions

Information systems security is the most quickly growing area of IT investment in France. Although industry representatives state that many French businesses are "vastly under protected" with regard to their data, particularly in comparison with their northern European neighbors, awareness of the importance of IT security has risen dramatically with the adoption of the Internet as a primary tool of communication among corporations and individuals. Fifty-five percent of French corporate managers consider computer security a major issue, and spending in this area has become a priority for 25 percent of them, according to U.S. Department of Commerce market specialists in Paris. Many French firms are eager to catch up with their European counterparts in investments in this area, and security seminars are becoming numerous and well-attended.[277]

The events of September 11, 2001, have made French managers much more aware of the importance of securing their intellectual property. Similar to firms in many other countries around the world, new projects spurred by the reactions to the fall's terrorist events for the most part were still on French firms' drawing boards in late 2001, with major expenditures predicted to take off in 2002.[278]

Outsourcing is rising

French corporations are increasing their outsourcing rapidly. Internet hosting is a

[273]Data received from Syntec Informatique, Paris, Nov. 16, 2001. This figure assumes a French GNP growth rate of 1.5 percent in 2002.

[274]*European Information Technology Observatory 2002*, Frankfurt, March 2002.

[275]"France: Best Prospects/ Industry Overview: Computer Software," *Industry Sector Analysis,* U.S. Department of Commerce/ U.S. Commercial Service, France, 2000.

[276]Data received from Syntec Informatique, Paris, Nov. 16, 2001.

[277]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[278]Ibid.

high-growth area, and hosted data storage is expected to be a large market in the future. For smaller French firms interested in outsourcing, application service providers (ASPs) are becoming popular. The relatively new genre of web-enabled services is reported to be an area of interest, although such applications for now tend to be hosted internally, on a firm's intranet. As in Germany, some analysts think that the movement toward outsourcing will slow once the French economy picks up and cost savings become less of an issue.[279]

Networking and storage equipment sales are strong

Because of their low IT investments in the 1990s, French firms lag their European counterparts in the use of intranets and extranets, which have become key investment areas. In fact, IDC's April 2002 Black Book predicts that networking equipment will be the fastest growing hardware segment in France over the medium term, showing a CAGR of 9.2 percent from 2002-2006, from $2.1 billion to $3.1 billion. Like in Germany, low-end and medium-range servers, necessary to support increasingly distributed networks, are key growth areas as well, with 2002-2006 CAGRs of 5.2 percent and 12 percent, respectively, according to the same source.

Data storage needs were already rising appreciably before September 11, 2001, as French firms built networks and installed data-intensive e-commerce solutions. Industry experts report that interest in data storage, and redundant systems in particular, has grown even more rapidly since that date. As of November 2001, new data storage and redundant system investments spurred by the terrorist attacks reportedly were still in the planning stages, with actual investments expected to begin in 2002.[280]

The PC market is depressed

Although some French organizations have an urgent need to upgrade computer equipment, many French firms bought new hardware, especially PCs, to replace old systems during their Y2K remediation efforts in the late 1990s. Due both to these earlier purchases and the economic downturn, the French PC market experienced some problems in 2001, according to *EITO 2002*, with a heavy decline in the later part of the year, due to depressed sales in the consumer, small business, government, and education markets. Sales will continue to be down in 2002 due to the slower economic growth rate. The PC market likely will not begin until 2003.

Euro-related IT expenditures, though coming to an end, continue

French organizations also have been purchasing technologies to allow both their internal and external networking processes to transition to conducting transactions in the euro. Although theoretically such IT investments should have concluded by January 1, 2002, the date of full transition to the euro, as in Germany not all firms had finished upgrading their systems at the end of 2001. These investments were expected to continue through part of 2002.[281]

[279] Ibid.

[280] Ibid.

[281] Ibid.

Trends in leading vertical industry end-users

Syntec Informatique reported that growth in the demand for software and services (which constitute the bulk of IT investments in France) by all vertical industry end users in France, with the exception of the public sector and the defense industry, either was steady or fell in the second half of 2001. Syntec Informatique expects this to change in 2002, predicting demand growth to remain steady in the first half of the year and rise in most industries, namely telecommunications, insurance, transportation, defense, and utilities, in the second half of 2002.[282]

The French government's use of IT

Like its German counterpart, the French government lags its private sector in using new technologies. However, France has one of the most technologically advanced national governments in western Europe. The French government has automated many of its processes in recent years. The government spent €5.1 billion ($4.5 billion) on IT and telecommunications in 2001, according to *EITO 2002*. EITO predicts this will rise to €5.2 billion ($4.6 billion) in 2002. The French government's use of online technologies is discussed in the e-government section at the end of this chapter.

Smaller French firms' use of IT

Like small firms everywhere, French SMEs[283] lag larger firms in IT usage, but they are increasing their IT investments. According to the BNP Paribas Lease Group, approximately 96 percent of French SMEs had at least one PC at the end of 2000, up from 92 percent in 1998, and the average number of PCs per French SME in 2000 was nine.[284]

U.S. firms lead in supplying nearly all IT market segments

Most IT hardware and software purchased in France comes from foreign, particularly U.S. firms. France has few significant packaged software producers, and U.S. software firms dominate France's market for packaged software solutions. In fact, seven of the top ten software vendors in France are from the United States.

The exception: the French dominate software services

French firms are extremely competitive in one IT sector– software services, namely custom programming and systems integration. In fact, France is considered to have the number one software services industry in Europe, and many observers rate French systems

[282]Data received from Syntec Informatique, Paris, Nov. 16, 2001.

[283] For comparison purposes, it is important to note that the definition of an SME in France differs from the typical usage of this term in the United States. SMEs in France are defined as those firms having between 6 and 200 employees.

[284]Compared to 11 PCs per SME in Germany, nine PCs per SME in Spain, and seven PCs per SME in Italy. As cited in "Equipment des Enterprises en Micro-Ordinateurs," *Tableau du Bord du Commerce Électronique: Indicateurs,* IDATE, www.idate.fr.

integrators (SIs), which include Cap Gemini, Sema Group, Bull, and Unilog, among the best in the world. France has close to 6,000 software services firms, according to Syntec Informatique, and this industry is ranked the third most important industry in the French economy, after insurance and automobiles. French software services firms are very strong in banking, finance, and insurance; computer-aided design (CAD); health care systems; network administration; and the automotive and aerospace industries.[285]

French software services firms are first-rate for various reasons.[286] French companies tend to outsource their software development to a greater degree than their European counterparts, which has long created a large market for customized programming and allowed French engineers to hone their skills. In addition, for decades the French government's defense industry has demanded leading-edge, sophisticated custom software programs, also bringing business and experience to local firms. Some French programmers have parlayed this expertise into software packages for sale. For example, Boeing uses one of Dassault's many software products to manage its airplane construction.

A key reason for the competitiveness of French systems integrators is the makeup of the SIs themselves. The majority of employees in a typical French SI are not software developers or engineers. Instead, SIs tend to recruit creative people or people from the industry in which the SI firm operates, such as banking or insurance. As a result, French SIs are renowned for being able to interface easily with new customers. They understand quickly and intuitively their clients' needs and competitive environments, and offer extremely well-tailored product solutions.

Although there are a few large French SIs whose names are recognized globally, the vast majority of these firms are small and operate in sectoral or niche markets, such as smart card software, telecommunications systems, air traffic control, or subway systems. For the most part, French SIs produce no software themselves but excel at integrating other firms' software products into solutions for clients. Industry representatives report that many French SIs are starting to offer consulting services as well, to help managers who are becoming overwhelmed with technology choices.

Most French software services firms are focused on the French market. However, this is changing slowly, particularly for SIs, as some firms are beginning to develop business in other European countries, such as Germany. Industry observers interviewed in Paris in November 2001 commented that many French SIs' end goal is to enter the U.S. market.

Local IT start-ups are multiplying

As in Germany, in the late 1990s, numerous French IT start-ups emerged to serve the French market. Many of these focused on Internet solutions. During the second half of 2000, 5,370 new IT firms or business units were formed, accounting for nearly 75 percent of all start-ups in France in that period,

[285]Data received from Syntec Informatique, Paris, Nov. 16, 2001.

[286]Information in the paragraphs in this section comes primarily from French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

according to U.S. Department of State analysts in Paris. The number of start-ups was 33 percent more than in the same period in 1999.[287]

One important characteristic of France's Internet industry has been the prominent role of large, established companies in the telecommunications, retail, and financial sectors, such as France Télécom (FT), Bouygues Télécom, Vivendi Universal, and Louis Vitton (LVMH). Unlike in the United States, where Internet start-ups tended to be stand-alone firms, in France many start-ups were developed in-house as business units of these large firms, or were independent entities but then quickly acquired by such firms, which were rushing into offering a broad range of Internet services to capitalize on a growing market in the late 1990s.[288]

Following the tech sector downturn, however, these large firms drastically scaled back their Internet ventures. For example, Vivendi Universal consolidated its burgeoning number of portals and multimedia sites under new management. Even FT's Wanadoo ISP and portal has suffered, losing €102 million ($89.8 million) and 70 percent of its stock value in 2000.[289]

Some analysts believe that many of these services would have fared better if Internet use in France, particularly broadband, had been more widespread, a limitation that is beginning to disappear. Despite these failures, the large firms are expected to continue to offer Internet services in the future, although likely ones that are more modest, are pay services, which promise to be profitable in the medium term.[290]

As elsewhere, in the aftermath of the bursting of the Internet bubble, many of the small start-ups failed in France over the past few years as well. Nonetheless, successful independent start-up firms remain and new ones continue to emerge. However, despite government efforts to encourage them, these small French firms face many challenges.

The most critical challenge has been a lack of funding. Bank loans are expensive or nearly impossible to secure, since French banks generally shy away from loaning to new or unproven companies.[291] The IPO route is difficult as well. Being a public company is much rarer in France than in the United States, partly because it is relatively expensive for a firm in France to go public, and also because the stock market in France tends to be invested in by institutions. Fewer individuals – who have been a source of much of the capital in the U.S. stock market– invest directly in stocks in France (either via purchasing single stocks or mutual funds). Further, CEOs of French starts-ups reportedly do not have the time to devote to an IPO.[292]

[287]"France's Largest Firms Scale Back Internet Ventures," U.S. Department of State, Unclassified Cable, August 23, 2001.

[288]"France: E-commerce/ Direct Marketing Through the Internet."

[289]"France's Largest Firms Scale Back Internet Ventures."

[290]Ibid.

[291]This is true for all French firms, not just those in the technology sectors.

[292]Most CEOs of small French firms do much of a firm's work themselves. It is not common in France, as it is in the United States, for a CEO to have assistants to share daily responsibilities and who could help prepare a firm to go public. French industry representative, interview by USDOC staff, Paris, Nov. 14, 2001.

Venture capital remains a possibility. However, as in the United States the French venture capital system has become more difficult to tap into as venture capitalists (VCs) reel from failures of 2000 and 2001. Many French VCs have dropped companies in which they lost confidence, and are focusing on reinforcing investments in or adding management to the stronger start-ups in their portfolios. In addition, industry observers state that many French VCs lack experience with Internet firms. During the boom of 1999 and 2000, some French VCs reportedly hired younger, Internet-savvy staff to interface with Internet start-ups, but gave these new hires little authority or money to actually invest. The situation is changing somewhat as VCs specializing in Internet-related funding have begun to appear. Nonetheless, industry representatives state that these firms are constrained because their investors do not let them invest a lot of money.[293]

These constraints notwithstanding, VC for new IT firms does exist. However, French VCs reportedly are having trouble finding good projects. Like in the United States, VCs in France, after losing large amounts of money funding ideas and concepts, have made it clear that they seek more "concrete" projects, such as those based on specific technologies.[294]

TELECOMMUNICATIONS

Third largest telecommunications market in the region

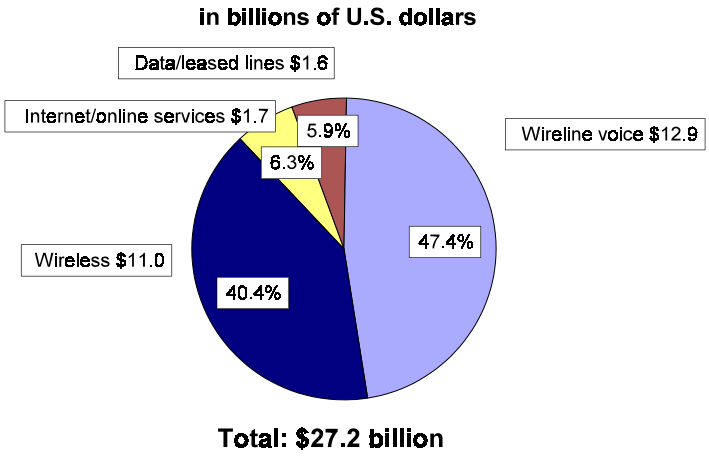
France's telecommunications market, similar to its IT market, is the third largest in western Europe, after Germany and the United Kingdom. The telecommunications sector plays an increasingly important role France's economy, accounting for 3.2 percent of GDP in 2001, up from 2.3 percent in 1999.

The telecommunications services market was valued at €30.9 billion ($27.2 billion) in 2001, according to *EITO 2002*. As in Germany, wireline voice services and wireless services accounted for the bulk (47 and 40 percent, respectively) of the French market in 2001. Internet and online services, and switched data and leased line services, each accounted for an additional 6 percent (Figure 4-3).

[293]Ibid.
[294]Ibid.

Figure 4-3

FRANCE: TELECOM SERVICES MARKET, 2001



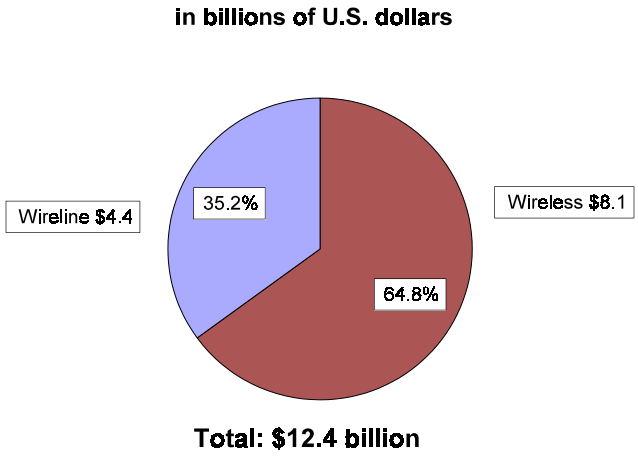
Source: EITO 2002

The French market for telecommunications equipment remained surprisingly large in 2001, with an estimated value of $12.4 billion in 2001, 18 percent larger than the German telecommunications equipment market, according to Reed Electronics Research.[295] The reason for the continued strength of the French demand for telecommunications equipment was primarily the wireless sector, which accounted for 65 percent of the French market (Figure 4-4).

[295]"2002 Summary of World Markets." *E-Insite,* Reed Electronics, January 1, 2002.

Figure 4-4

FRANCE: TELECOM EQUIP. MARKET, 2001



Source: Reed Electronics Research, 2002

In this respect, the French telecommunications equipment market is the opposite of that of Germany. In the latter, slightly more than half of the market (53 percent) was for wireline equipment in 2001.

Growth in France's telecommunications services market fell sharply in 2001

Spurred by the liberalization of basic telecommunications services in 1998, the value of the French market for telecommunications services grew at an average annual rate of 12 percent from 1998 to 2000, according to the French telecommunications regulatory authority. This growth rate fell sharply to 2 percent in 2001, according to ART, a level where it is likely to remain throughout 2002, due primarily to the current global economic slowdown. However, many observers expect

the French market for telecommunications services to resume a double-digit growth rate by 2003. As in Germany, the two principal drivers of this growth are the Internet and mobile communications.

Telecommunications equipment market is steady

France's market for telecommunications equipment remained constant in 2001, with a 2 percent increase in the value of the wireless equipment segment offsetting a comparable decline in the wireline segment, according to Reed Electronics Research. Broadband equipment purchases are likely to drive the French equipment market to reach an annual growth rate of 8-9 percent by 2003, driven by the needs of telecommunications service providers for both wireline and wireless broadband communications. U.S. exports of telecommunications equipment to France decreased by 31 percent in 2001, dropping to the same level as in 1998 ($374 million).[296] It is not clear what caused this decrease, except perhaps the decline in the French demand for wireline equipment.

Liberalization of the regulatory regime

As in Germany, many opportunities for U.S. exports and investment in France have resulted from the liberalization of the French regulatory regime in stages, over the past decade. ART was established as France's independent telecommunications regulator in January 1997, one year earlier than its German counterpart, to prepare for the liberalization of basic telecommunications services in January 1998.

Independent of France Télécom (FT), the incumbent, ART makes and implements the rules for telecommunications competition in France (Text Box 4-1). However, its powers are more limited than those of its counterpart in Germany. Unlike RegTP, ART is not responsible for frequency allocation or for certain broad regulatory functions.

[296]Source: U.S. Department of Commerce. Data on the value of U.S. telecommunications exports to France vastly understate U.S. firms' competitiveness there because many large U.S. telecommunications suppliers have manufacturing plants in France and other countries in western Europe from which they serve the French market. In addition, many U.S. telecommunications equipment firms also serve western European markets from Asia-based manufacturing operations.

Text Box 4-1

TELECOMMUNICATIONS REGULATORY AUTHORITY: ART

ART makes and implements rules on:
- tariffs for telecommunications services;
- universal service obligations; and
- network access and interconnection.

ART recommends rules and their implementation on:
- licensing facilities-based telecommunications operators; and
- frequency allocation.

Frequency allocation is the responsibility of the National Frequency Agency (AFN), which is managed by a board of directors representing all interested agencies of the French government, including ART. Supervision of FT is the responsibility of the French Minister of Industry, and licensing is the responsibility of the Telecommunications Minister, although these Ministers consult with ART on these matters.

As elsewhere in western Europe, the French regulatory regime is asymmetrical– meaning that its main focus is on the incumbent as opposed to the incumbent's competitors– to offset the significant market power of the incumbent, FT, especially in wireline communications. ART is considered to be truly independent of its incumbent (FT), unlike other regulatory authorities in the region. It has the power to enforce its decisions on local access and ADSL with sanctions such as fines up to two percent of annual revenues, which it has done on occasion. In addition, French legislation was amended in 2001 to authorize ART to intervene on its own initiative in negotiations of operators for interconnection with FT, instead of awaiting a complaint, but this power cannot be exercised until ART modifies its rules of procedure.[297]

France Télécom: powerful incumbent and market leader

Despite liberalization and increased competition, France's telecommunications market continues to be dominated by FT, which is the third largest telecommunications operator in Europe in terms of revenue, after DTAG (Germany) and Vodafone (United Kingdom). During the first half of 2001, FT earned revenue of $18 billion from its telecommunications operations, ranking it as the eighth largest telecommunications operator in the world, according to *Communications Week International*.[298] By the end of 2001, FT had 34 million wire lines, 13 percent of which were ISDN lines, according to CIT Publications.[299]

Until 1997, FT was part of the national government, like most other monopoly telecommunications operators in Europe. In October 1997, one year after the partial privatization of DTAG, about one third of FT was privatized in one of the largest IPOs in the history of France.

[297]Further information on the French telecommunications regulatory environment is available on ART's website (http://www.art-telecom.fr), which has a section in English.

[298]"Telecom Top 100," *Communications Week International*, March 4, 2002.

[299]"France: Basic Telephony," *Datafile of European Communications*, CIT Publications, February 2002.

Like in Germany, the French government still owns part of the incumbent. The French state owns 60 percent of FT; Vodafone owns four percent; Deutsche Telekom AG owns two percent; the Treasury of France owns one percent; and public stock-holders and employees own the remaining 33 percent, according to CIT Publications.[300]

The privatization of FT provided capital and stock that allowed FT to make the acquisitions and other investments necessary to become the truly global operator that it is today, with wireline customers in 22 countries. In fact, FT earns 36 percent of its revenues from outside of France, and ten percent of its shareholders are non-French, according to a *Time* article of April 15, 2002. FT's mobile division, Orange, has operations in every European country except Spain. FT has a stellar reputation in France, where its telecommunications network is considered second to none, as a result of concerted investment by FT to modernize its network over the past two decades.

Like many other technology companies around the world, FT was hit hard in recent years by the economic slowdown, losing two-thirds of its capitalization during the year ending in April 2001 and another 50 percent during the following year. Nonetheless, FT still has a market capitalization of €40 billion ($35 billion).

FT now has six principal lines of business, provided by the following six subsidiaries, most of which are wholly owned by FT:

- **FT Cable**, which provides cable TV service to 2.1 million people in Europe;
- **FT Multimedia**, which provides multimedia services such as Internet access and telephone directories through two subsidiaries, Wanadoo and Oleane, making FT the third largest ISP in Europe;
- **France Cables et Radio**, which builds and manages national and international telecommunications networks;
- **Telediffusion de France**, which provides primarily audiovisual distribution services but also mobile and data communications;
- **Orange**, a holding company, 85 percent of which is owned by FT, with subsidiaries in 21 countries, serving 33 million mobile subscribers as of September 2001; and
- **Equant**, based in Amsterdam, 54 percent owned by FT. One of the leading providers of international IP and data services to multinational businesses, with operations in over 140 countries.

According to Faulkner Information Services, FT reported a 27 percent increase in its consolidated revenues during 2001, to €43 billion ($38 billion).[301] This rise was due primarily to growth of its Internet and wireless divisions, Wanadoo and Orange. However, FT recorded a net loss of €8 billion ($7 million) in 2001, almost as large as the loss of Vivendi Universal during 2001

[300]Ibid.

[301]"FT Posts 43 Billion Euros in Revenues," *Faulkner Telecom Daily*, March 21, 2002.

(€14 billion or $12 billion, the greatest loss ever reported by a French company).

FT's loss was due to payments on its staggering debt burden and its write-off of €10 billion ($9 billion) to account for depreciation in the value of its assets. This loss was a major turnaround for a company that had earned an after-tax profit of more than ten percent for each of the preceding two years, according to CIT Publications.[302]

Debt burden of FT

Like many other incumbent operators in western Europe, FT is suffering from excessive debts, currently valued at €61 billion ($53 billion) due to overpayments for recent acquisitions and for licenses to offer 3G wireless services in numerous countries, according to Faulkner Information Services.[303] FT's Chairman, Michel Bon, announced in March 2002 that FT had to cut its losses and take responsibility for over-extending itself during the telecommunications boom in 2000-2001, according to CIT Publications.[304] In 2002, FT wrote off much of its year 2000 investment in German mobile operator MobilCom and British cable TV operator NTL. These two acquisitions alone accounted for 20 percent of the €60 billion ($52 billion) that FT spent during 2000-2001 to expand into global markets for new products such as wireless communications and international data networks for multinational corporations. Starting in 2000, FT's debt burden was further increased by the inflated prices that it paid for licenses to offer 3G services in 11 countries in western Europe, despite the fact that its licenses to offer 3G in France were relatively inexpensive compared to licenses in other EU Member States.

Nevertheless, FT succeeded in reducing its net debt by €3 billion ($2.6 billion) during 2001 by disposing of real estate, and its goal is to cut its debt by at least €18 billion ($16 billion) by the end of 2003. After a high-profile dispute between MobilCom and FT, in order to minimize its financial obligations FT severed its ties with the German mobile operator in September 2002.[305]

Liberalization has stimulated wireline growth, competition

The intensity of wireline competition in France is reflected by the fact that ART had licensed 120 operators by the end of 2000, many of which were funded by foreign investors. In fact, during 2000, foreign investors invested $6 billion in their French telecommunications operations, more than did French-owned operators such as FT, according to ART.

Liberalization has stimulated growth in Internet access and competition in long-distance and international wireline telecommunications services. Rapidly growing demand for Internet access led to an 18 percent increase in the number of wireline call minutes in France from 1998 to 2000,

[302]"FT - Financial and Operational Highlights," *Datafile of European Communications*, September 2001.

[303]"FT Posts 43 Billion Euros in Revenues."

[304]"FT Announces EUR12 Billion Write-Down on NTL and MobilCom," *Communications Update*, March 12, 2002.

[305]"France Tel Suffers on Uncertainty Over Rescue Plan," Reuters, September 13, 2002.

according to ART's *Annual Report 2000*.[306] In fact, calls for access to licensed Internet operators and advanced services accounted for 26 percent of the total wireline call volume in France during 2000, further growing to 38 percent by the second quarter of 2001. The cost of Internet access for less than 30 hours per month has decreased by an average of 50 percent from 1998 to 2000. Competitive telecommunications operators had managed to seize from FT 36 percent of the French market for long-distance and international telecommunications services by 2001, according to CIT Publications. Consequently, the prices of long-distance calls over FT's network declined by 17 percent from 1998 to 2000, while they declined by 29 percent over its competitors' networks.

Some of FT's wireline competitors

Since 1998, FT's principal wireline competitor has been Cegetel, a joint venture between Vivendi Universal (44 percent), BT (26 percent), Vodaphone (15 percent) and U.S.-based SBC (15 percent), according to CIT Publications. Cegetel offers long-distance and international service under the brand name Le 7, for which it had 2.9 million subscribers at the end of 2001, 14,000 of whom were business customers. Cegetel provides voice and data services over the 18,000 km. fiber-optic network of Telecom Developpement, a joint venture with SNCF, the French national railroad. Cegetel's network is connected to a 45,000 km. pan-European network that is owned by Farland. After Cegetel, 9 Télécom (owned by Telecom Italia) is the next largest wireline competitor in France.

Nascent competition in local wireline services...

Despite the success of competition in long-distance and international telecommunications services, local competition is only at the take-off stage in France. Only one percent of the French population had a choice of provider for local access services in 2001, according to the European Commission.

...due to lack of competition in the local loop

The lack of competition in France's local wireline services market can be attributed to delays in unbundling of the local loop, a large number of appeals by FT against ART decisions, and ART's lack of power to enforce its decisions or implement sanctions. Nevertheless, the foundations for competition in local telecommunications services were established in France during 2001, as a result of a number of steps taken by ART, focusing on such issues as unbundling.

ART began the process of unbundling FT's local loop in September 2000, when it issued a decree requiring FT to supply detailed information about its network topology to allow competitive telecommunications operators to plan deployment and co-location of their equipment on FT's premises. A large number of competing operators signed up for local loop unbundling trials in France during 2000. However, nearly half of them lost interest (including WorldCom and BelgaCom) during a prolonged dispute between ART, FT and competitive operators

[306]"Annual Report 2000: The Summary," Authorité de Régulation des Télécommunications.

concerning the tariffs regulating prices for unbundled local loops and line-sharing. Nevertheless, nine competitors placed orders for co-location of facilities at 116 of FT's local exchanges between April and October 2001, and 83 of the sites ordered had been delivered by October, mostly in the Paris region, according to CIT Publications.

ART's rigorous approach to interconnection and unbundling

Relatively transparent interconnection regulations have helped pave the way for competition. Despite delays and problems with implementation, ART has managed to publish FT's reference interconnection offer each year for the use of its competitors.

In general, ART has been taking an increasingly vigorous approach to interconnection and local access issues since mid-2001. For example, ART has introduced local call pre-selection and, where necessary, sanction procedures against FT in regard to local access and asynchronous digital subscriber lines (ADSLs). In April 2002, ART demanded that FT further decrease its prices and otherwise improve its tariff and technical offer for providing unbundled access to its local loop by May 2002.

ART's decisions have succeeded in bringing some competitive operators into France's local telecommunications market. Competitors such as Cegetel have introduced local telephone service over their networks in 2002, although a large number of connections will be provided by FT, according to CIT Publications. Consequently, FT reported that its share of local telephone services declined to 87 percent in the first quarter of 2002.

FT's Wanadoo the leading dial-up Internet provider

FT's ISP subsidiary, Wanadoo, claims to have succeeded in becoming the third largest ISP in Europe, but it does not dominate the French market as much as T-Online dominates the German market. Wanadoo's share of the French market was some 15-20 percent in 2001, compared to DTAG/T-Online's 51 percent share of the German market. Seventy-two percent owned by FT, Wanadoo has been the most rapidly growing division of FT for some time. During the year ending March 31, 2002, Wanadoo's base of active subscribers throughout Europe increased by 35 percent, reaching 6.7 million, approximately one-half of which were in France. Wanadoo's revenue reached €375 million ($326 million), during the first quarter of 2002, an increase of 29 percent over the first quarter of 2001, according to CIT Publications. Wanadoo predicts that, for the first time, its earnings before interest, taxes, depreciation and amortization will be positive for the year 2002, according to Dow Jones Newswires.[307]

ART has been more successful in persuading FT to offer competitive ISPs a reasonable wholesale flat rate for Internet access than RegTP has been with DTAG in Germany. ART reached agreement with FT on a wholesale flat rate in April 2001, which competing French ISPs have been able to obtain from FT since September 2001. According to a report in the German press, ART has also ordered cuts of five to

[307]"Wanadoo Says It Will Break Even in Full-Year 2002, Sooner than Expected," Dow Jones Newswires, January 22, 2002.

35 percent in FT's wholesale flat rates, effective in 2002.[308] This should allow increased competition between ISPs offering narrowband (dial-up) Internet access.

France's other leading ISPs are Club Internet (owned by Germany's T-Online), AOL France, and Yahoo! France.

Three main drivers of growth

As throughout western Europe, growing competition, falling profit margins from basic voice services, and the slowdown of growth in France's telecommunications market have forced French telecommunications operators to focus on three main areas of growth: value-added telecommunications services, broadband, and mobile communications.

First driver: value-added services

Since 2000, value-added services have become a primary source of revenue growth for telecommunications operators in France, as in Germany. Basic voice and data transmission services generate revenue losses for most operators in France because of intense competition and decreasing prices for all basic services, including local telephony. Industry observers in France point out that wireline operators face two alternatives to move up the value chain. They must either get into the growing market for Internet protocol (IP) services or they must begin providing content instead of serving simply as "pipes" for content supplied by other firms.[309]

In recent years, the fastest growing value-added services in France have been messaging and directory services for voice, call centers, automatic speech recognition, automatic translation, and private network management. Although the market for these value-added services based on legacy networks continues to grow, the focus is now shifting to more advanced services such as IP-based virtual private networks (IP/VPNs), voice over Internet protocol (VoIP), and managed web hosting. IP/VPNs are really starting to take off in France, winning customers away from FT's ATM frame relay service, according to industry observers. This segment of the market is becoming competitive, with new firms launching IP/VPN service, such as FT's Amsterdam-based subsidiary Equant. The largest web hosting facility in Paris is operated by WorldCom, a representative of which comments that secure servers are also taking off now.[310]

Providing media content has attracted the interest of value-added service providers in France. These providers have become interested in content provision due in large part to the opportunity firms of all sizes have had to earn substantial revenue over the past two decades by delivering content over the Minitel online system. The most prominent French firm that has chosen to be a content provider rather than merely providing the pipes for transmitting content is Vivendi Universal. Vivendi Universal has reportedly become the second largest media conglomerate in the world, due in part to its

[308]"France Lowers Prices for Wholesale Flat Rate," *Heise Online*, December 6, 2001.

[309]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[310]WorldCom representative, interview by USDOC staff, Paris, Nov. 15, 2001.

takeover of Universal Studios in 2000.[311] Since its merger with Universal Studios, Vivendi has focused on providing content to fill the pipes of both wireline and wireless telecommunications operators, including its subsidiaries, Cegetel and SFR.

Data communications via both private and public networks in France is expanding quickly. IDC's April 2002 Black Book predicts a CAGR in networking equipment of 9.2 percent from 2002-2006, driven by larger and larger data transfers and burgeoning demand for high-volume, high-speed data.

Corporate customers are generally the key consumers for data communications, but this portion of the French market is almost as competitive as in Germany, since a large number of pan-European operators focus only on this lucrative market. For corporate VPNs, firms want remote access including up to 2Mbps from home via digital subscriber line (DSL). Large firms are migrating their existing corporate networks from x.25 to IP as IP traffic grows.

SMEs and the majority of large French firms do not possess their own data communications infrastructures. Instead, they use those of telecommunications operators, primarily FT, in order to minimize investment and management costs. SMEs have long used FT's ISDN lines for data communications, but they can now use its ADSL to accomplish similar data transmission rates at a lower cost. The problem with ADSL is that it does not yet offer the same reliability as leased lines. Over the next five years, DSL is likely to improve to the point that it increases its share of the corporate market at the expense of leased lines.[312]

Competitive landscape in value-added services

As elsewhere, competitive telecommunications operators rely primarily on leased lines from FT to be able to deliver high-speed data communications with service guarantees to their principal customers, large corporate users. However, the price of leasing a line from FT is substantially higher than it would be in the United States, even though FT's price is relatively low by European standards, according to the European Competitive Telecommunications Association (ECTA). Only 7 percent of the leased lines provided by FT during 2001 were sold wholesale, with charges based on bitstream, and the remainder were retail, according to ECTA.

Second driver: broadband

Despite French and European Commission aspirations for an "information society" throughout western Europe, and despite being the third largest economy in the EU, France was ranked only eighth among the 15 EU Member States in terms of broadband penetration in June 2001. At that time, its broadband penetration rate was only

[311]"What the French Know about Globalization," *Time*, April 29, 2002.

[312]Most of this paragraph is based primarily on an interview with a WorldCom representative in Paris on Nov. 15, 2001.

0.59 percent, according to the OECD.[313] Nevertheless, the prospect for competition in broadband is improving in France, and some observers estimate that broadband penetration will reach 22 percent by 2005. Until recently, French users' principal two choices for broadband access have been FT's DSL and FT Cable's high speed Internet access service.

FT's virtual monopoly of DSL

FT launched DSL in Paris in November 1999 and soon began offering it in various French cities. FT ignored protests from ART that its license was for Paris only, arguing that it had a mandate from the Prime Minister to promote the "information society," which depends heavily on the mass marketing of broadband. ART's efforts to unbundle FT's local loop so that FT's competitors could offer DSL too were delayed by opposition in the French Parliament.

Consequently, FT has seized the first-to-market advantage in DSL, as DTAG did in Germany. By the end of the first quarter of 2002, FT had succeeded in making DSL a mass market phenomenon, connecting 545,000 subscribers to its two principal broadband products: ADSL Connect ATM and Turbo DSL. ADSL Connect, offering speeds of up to 2 Mbps, is intended for consumers and SMEs. As of spring 2001, 55 percent of the French population had access to ADSL. According to industry experts, by 2004 the number of ADSL subscribers in France is expected to reach 5 million, of which Wanadoo will provide service to 2 million.

FT's Turbo DSL is synchronous DSL for businesses, such as telecommunications operators and ISPs, offering them the bandwidth of leased lines without leased lines' service guarantees.

Prospect for faster DSL rollout and competition in DSL

The rate of DSL rollout in France is slower than elsewhere for numerous reasons, but these obstacles are disappearing. The four principal obstacles to rapid DSL deployment are the high cost of FT's ADSL, the lack of competition from other DSL providers, the lack of flat-rate access to narrowband Internet, and the lack of competition from cable modems.

FT's retail price for ADSL was 300 FF (approximately $41)[314] until 2002, which is the main reason for the slow DSL roll-out in France, according to *DSL Prime*. In 2001, competitive telecommunications operators such as 9 Télécom provided only 400 of the 400,000 DSL lines in France, according to ECTA, and one competitor (Mangoosta) went bankrupt in August 2001, amidst accusations that FT was using predatory pricing against it. However, several competitive DSL providers should be more successful in 2002, as they take advantage of the opportunities for resale or competitive supply of DSL resulting from the telecommunications unbundling and line-sharing that ART is now requiring.

[313] *The Development of Broadband Access in OECD Countries*, Organization for Economic Cooperation and Development (OECD), Directorate for Science, Technology, and Industry, Working Party on Telecommunications and Information Services Policies, October 29, 2001.

[314] The exchange rate used in this report is $1.00=7.33 FF.

Furthermore, as mentioned above, ART has now facilitated increased flat-rate, dial-up access to the narrowband Internet, which should in turn stimulate the demand in France for broadband.

Future of DSL in France?

Many industry observers expect the rollout of DSL in France to accelerate over the next couple of years.[315] In response to increasing competition from other broadband providers and increased demand for broadband, FT announced plans in late 2001 to invest €400 million ($348 million) to increase the percentage of the French population with access to ADSL from its current level of 55 percent to 80 percent by the end of 2003, according to Reuters.

In addition, FT proposed to ART in April 2002 a decrease in its ADSL access fees by 17 percent for retail customers and 23 percent for corporate customers. FT claims that these tariffs will be the lowest in Europe and will be available to all interested parties, including SMEs, ISPs and competitive telecommunications operators, according to CIT Publications. However, ART may resist the proposed price decreases on anti-trust grounds. Despite these anticipated changes, DSL ultimately faces the same challenge in France as elsewhere, i.e., the need for "killer applications" to drive demand.

U.S. telecommunications equipment manufacturers stand to benefit from further growth in the French DSL market. For example, CIT Publications reports that Lucent Technologies announced in March 2002 that it had been awarded a three-year framework contract by FT to supply ADSL access systems for FT's national network.

Cable modems

There has been little competition to DSL from cable modems for two reasons. France has one of the lowest rates of cable TV penetration in Europe (five percent of inhabitants in 1999). Further, until recently, there was no incentive for cable TV operators to invest in broadband access, because the principal cable TV network in France (FT Cable) was owned by FT, which preferred to invest in DSL.

Broadband access over cable TV networks started to grow faster in France in August 2000, when FT sold its 49.9 percent stake in NOOS, France's largest cable TV network operator. A subsidiary of Suez Lyonnaise des Eaux, a leading French conglomerate, NOOS has upgraded its cable TV network for interactive Internet access from 64 Kbps to 512 Kbps. Consequently, the number of NOOS cable modem subscribers increased from 63,000 at the end of 2000 to 81,000 in June 2001. In total, in June 2001 there were 174,000 subscribers to cable TV modems in France. At this point, it had become evident that FT was gradually withdrawing from the cable TV market, according to an OECD broadband study of October 2001.[316]

Despite the growth in use of cable modems, DSL use was growing faster. By mid-2001, DSL had become the predominant technology platform for providing broadband access to the Internet in France, overtaking cable TV

[315]French industry observers, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[316]*The Development of Broadband Access in OECD Countries*.

networks. In June 2001, there were 177,000 DSL subscribers– more than the country's cable modem subscribers.

Future of cable modems in France?

It remains to be seen whether cable TV networks will be able to catch up with DSL again in France, once FT completes divestiture of its cable TV assets to such other companies as NTL. The growth of cable TV may be stunted by the emergence of competition from digital terrestrial TV (DTV), which is expected to emerge in France in 2003. In addition, the prospect for cable TV competition with DSL in providing broadband is not as promising in France as it is in Germany, because France's cable TV penetration rate is about one fifth that of Germany.

A look at key markets for broadband

There are three types of markets for broadband services in France: businesses, households, and medium-sized cities. The French government's efforts to promote broadband by supporting competition among broadband providers is beginning to bear fruit in each of these markets, especially in the business market.

Businesses: The principal two technological platforms for offering broadband services to businesses have been optical fiber lines and wireless local loop (WLL). Some 20 telecommunications operators are active in this market, which is quite competitive. The principal two constraints on growth in this market have been the high price that FT charges competitive operators for leased lines and the focus of most operators on France's main cities (those with more than 100,000 inhabitants).

A subset of the corporate market is for SMEs. The principal technologies providing broadband services to French SMEs are WLL, DSL, and leased lines. Competition in this market is intensifying, due primarily to WLL operators. There are seven WLL operators in France, two with national licenses and the remainder with regional licenses. WLL operators are licensed to use one of two frequency bands in France: 26 GHz or 3.5 GHz. Their licenses require them to offer services to every city with more than 30,000 inhabitants before 2005, a deadline that may be difficult for them to meet due to financial constraints and equipment shortages. WLL operators in France currently face the same kind of financial problems with meeting network coverage obligations as they do in other countries. There is also a shortage of equipment for the 3.5 GHz frequency.

Households: As in most other European countries, the principal two platforms for offering broadband services to French households are cable TV networks and DSL. Approximately 800,000 homes in France had a high-speed Internet connection (ADSL or cable) at the end of March 2002. FT's Wanadoo dominates the provision of broadband to French homes, with 482,000 ADSL subscribers and 49,000 cable subscribers at that date.

Medium-sized cities: There are very few broadband networks intended for medium-size cities and rural areas in France, so the French government announced a new program to address this shortage in July 2001. To promote more universal access to

broadband, the government plans to promote and support the construction of two kinds of broadband networks for this market by 2005. The first would use the infrastructure of the country's electrical power network, known as RTE, to make broadband available to cities with less than 10,000 inhabitants. In addition, the government is offering to provide financial support to help local governments build fiber optical metropolitan area networks (MANs).

Other broadband technologies

Another platform for broadband access that may appear in France within the next year is digital terrestrial TV (DTV), aimed primarily at households. The French government plans to grant licenses to DTV operators in November 2002. However, it may be some time before this market takes off, because DTV will require a huge investment to upgrade networks, particularly for cable TV operators.

3G wireless is also widely considered to be a broadband access technology, aimed at both businesses and households. However, it is not clear yet whether it will offer the full broadband transmission speeds that it is designed to offer, and, if so, when. Another technology that could allow broadband Internet access is via powerline communications, but its prospects seem dubious in France, as in Germany, according to industry observers.

Third driver: mobile communications

With 36 million wireless subscribers, France accounted for 12 percent of the wireless subscribers in western Europe by the end of 2001. France liberalized its mobile communications market in 1987, far in advance of the 1995 deadline established by the EU. As elsewhere in Europe, mobile communications has been the fastest growing telecommunications service in France since it was opened to competition, and it is expected to continue driving growth in the French telecommunications market for the foreseeable future. The number of active wireless subscribers[317] in France overtook the number of wireline subscribers in September 2001, according to industry observers, about six months later than it did in Germany.[318] At the end of 2001, France's mobile penetration rate of 60 percent was still below the EU average (72 percent), but France is catching up fast, according to Kagan World Media.[319] In fact, the number of subscribers in France increased by 24 percent in 2001, significantly faster than in Germany, where the increase was only 16 percent.

Three mobile operators

There are three mobile network operators in France: Orange (France Télécom's mobile subsidiary), Société Francaise du Radiotéléphone (SFR), and Bouygues

[317]Most wireless operators have shifted their focus to active subscribers recently to focus on subscribers who are significant users of their services and to disregard subscribers that are inactive. This report uses data on active subscribers whenever available.

[318]French industry representative, interview by USDOC staff, Paris, Nov. 16, 2001.

[319]"World Cellular Census: European Cellular," March 31, 2002.

Télécom (part of a media, telecommunications, and construction group). Orange established its GSM 900 network in July 1992 and is the leading operator, with 49 percent of the subscribers as of March 2002. With nearly 17.8 million subscribers, Orange is the fourth largest mobile operator in Europe. SFR launched a similar GSM 900 network five months later than Orange and controls 34.2 percent of the French mobile market. Bouygues Télécom established a GSM 1800 network in May 1996 and has the remaining 16.8 percent. All three networks grew at approximately the same pace in 2001.

SFR is owned by Cegetel (80 percent) and Vodafone (20 percent). Vivendi Universal effectively controls SFR, because it owns 44 percent of Cegetel. Because Vodafone owns 15 percent of Cegetel, it indirectly owns 32 percent of SFR, and it is likely to increase that share, in line with its strategy of having controlling interests in all its mobile subsidiaries.

Beauty contest for 3G licenses

France used a more cautious approach than Germany and the United Kingdom when it licensed operators to receive spectrum for 3G wireless services. ART chose to use the traditional "beauty contest" approach to licensing, which allowed the French government to determine the price for allocating spectrum to licensees. In addition, France did not issue licenses for 3G wireless communications until April 2001 (after the European Commission's January 2001 deadline), the last major European country to do so.

These decisions to delay licensing and avoid an auction were widely criticized at the time, especially when only two mobile operators (Orange and SFR) were willing to pay the $4.5 billion licensing fee that ART required for each of the four licenses that it offered. In addition, ART attached strict conditions to these licenses. For example, ART required 3G operators to offer voice communications to at least 25 percent of the French population and data communications to 20 percent within two years. As elsewhere in western Europe, France's 3G licensees plan to base their 3G wireless services on the standard developed for Europe, UMTS.

To help operators, ART reduced license fees...

In response to criticism of its licensing process for being too expensive to attract adequate interest, in October 2001 Laurent Fabius, the former French Finance Minister, announced that the cost of each license would be reduced to only €619 million ($540 million), plus an annual tax of one percent on 3G services revenues. He said that the license terms would also be extended from 15 years (which had been the original time frame) to 20 years, to make them more attractive. The reduced license fees and extended license terms apply to both of the two initial licensees, incumbents Orange and SFR, in return for which both operators agreed to upgrade their existing 2G networks' mobile data services. The new license fees and terms are also available to any operators that can win the remaining two 3G licenses that ART plans to award by November 30, 2002.

...and allows 3G infrastructure sharing

Also to lessen the financial burdens on license holders, ART issued guidelines in December 2001 for 3G infrastructure sharing by mobile operators, comparable to the guidelines in Germany. Under these guidelines, ART authorized sharing of network facilities, provided that each operator maintains control over its transmission and switching. Further, it specified that operators cannot share spectrum, which is non-transferable.

3G licenses still available

France's third largest and only other mobile operator, Bouygues Télécom, paired up with Japan's NTT DoCoMo to bid for a third 3G license in May 2002. If successful, Bouygues has said it plans to spend €4 billion ($3.5 billion) on building a 3G network and could begin to offer commercial 3G services by 2004. Nevertheless, it still plans to concentrate on its general packet radio service (GPRS) and its planned launch of i-mode services in later 2002, according to BWCS staff.[320] No bidder emerged for the fourth 3G license. Germany's DTAG and Spain's Telefónica, which both had been possible contenders, have said they will not bid. ART will make its decision about awarding the last two 3G licenses in September 2002.

France at the forefront of 3G in Europe?

The net effect of the new 3G licensing terms in France was to reduce the up front cost per 3G license to only $540 million, far less expensive than in Germany and the United Kingdom, where licenses had been auctioned for as much as $7.6 billion and $6.5 billion, respectively. By November 2001, it was evident that, because of the much lower expenditures on 3G licenses by operators in France, France is in the best position among Europe's three largest mobile markets to actually build out its 3G infrastructure and, as a result, be in the lead for 3G usage in western Europe. The lower initial cost helps operators in France finance the construction of 3G networks with a better cash flow, and French consumers are likely to benefit from lower prices or earlier access to 3G services.[321]

Delayed 3G roll-out

Nonetheless, as elsewhere, unanticipated problems in the production of 3G equipment and uncertainty about when demand will materialize and be adequate to justify investment are delaying the rollout of 3G services in France. Commercial launch is not expected until 2004, according to Kagan World Media.

The French government hopes that the reduction in license fees and the award of a third license will expedite the rollout of 3G services by the other two licensees. 3G wireless is expected to win only one percent of the French mobile market in 2004, increasing to 32 percent by 2008, according to Kagan World Media.[322] Average revenue per user (ARPU) from 3G wireless is expected to be $85 monthly in 2004, decreasing to $58 in 2008, based on service revenues only. This

[320]"Bouygues' Bid Beats 3G Deadline," May 16, 2002.

[321]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[322]This paragraph and Figure 4-5 are based primarily on "European Cellular: France Looks to $23 Billion 3G Market," Kagan World Media, January 26, 2002.

would mean that the revenue from 3G wireless will be $12 billion in 2008, accounting for 43 percent of the French wireless services market (Figure 4-5).

Figure 4-5

FRANCE: MOBILE MARKET				
	2001	2004	2008	2011
Penetration Rate (%)	59.3 %	78.1 %	86.8 %	94%
Total Users (millions)	35.9	47.8	54.0	59.3
% 3G	--	1%	32%	54%
3G	--	$85	$58	$47
Blended ARPU	$33	$36	$38	$38
3G Revenues ($ billions)	--	$0.2	$12.5	$23.1
Total Revenues ($ billions)	$13.9	$22	$29.2	$32.6

Source: Kagan World Media
*ARPU= Average Revenue Per User

Dearth of 3G handsets

The supply of 3G equipment in France, as in other countries, is complicated by the growing global trend towards consolidation among mobile handset manufacturers, such as the merger of Ericsson and Sony to form the London-based Sony Ericsson. The largest manufacturer of mobile phones in France, Sagem SA, suffered from a sharp decline in revenues during the first nine months of 2001. To reduce costs and time to market, Sagem reached an agreement with Fujitsu in February 2002 to work together to develop 3G wireless phones. Another French manufacturer of mobile handsets, Alcatel, announced in February 2002 that it was seeking an Asian partner for its handset manufacturing, according to CIT Publications.

The market for 2.5G wireless

Although the deployment of 3G mobile communications is behind schedule in France, various interim technologies (categorized as 2.5G) for mobile data communications and mobile Internet access are beginning to be launched in France. The best known of these is WAP, which has been available from all three operators in France since 2000. However, WAP was even more of a flop in France than in Germany. WAP has not been widely used in France because the screen is too small and it is too expensive to use for web access, limiting it to e-mail applications.

As in Germany, the leading 2.5G technology in France is GPRS, which is widely viewed as an inexpensive test of the market for 3G services. Unlike their counterparts in other European countries, all three French mobile operators delayed plans to launch GPRS on a nation-wide basis until 2002, in order to avoid another disappointment such as WAP. Bouygues Télécom has focused the most on GPRS, primarily because it committed relatively late– May 2002– to build a 3G network. In February 2002, Orange announced nation-wide rollouts of GPRS in France and the United Kingdom, its two

principal markets, as well as plans to offer some roaming this year, according to *Communications Week International*. Orange reports a growing demand for GPRS from French corporate users. GPRS should provide a good test of the French market during 2002 if handsets are available in sufficient quantity to satisfy demand.[323]

The other two leading 2.5 G technologies (EDGE and i-mode) have not yet attracted much attention in France. As in Germany, EDGE is viewed as a more expensive upgrade of the existing GSM network, because it would require new terminals and switches. French operators are reluctant to commit to it for fear that it might undercut the ultimate demand for 3G services. Bouygues Télécom plans to launch i-mode in France in late 2002.

Strong growth in SMS

The rapid growth of short message service (SMS) suggests that France has strong market potential for growth in mobile data using such technologies as GPRS.[324] Because ART has just started reporting data on SMS usage, no data are available on SMS growth trends. However, ART reports that during the second third of 2001 770 million SMS messages were sent in France. French mobile operators are currently investigating ways to offer multimedia message services (MMS).

Other trends in mobile communications

A fundamental trend that is sweeping across Europe, France included, as mobile penetration rates approach saturation, is the effort of mobile operators to shift their focus from customer acquisition to customer retention and maximization of ARPU. Graham Howe, the CEO of Orange in the United Kingdom, told *Global Mobile* in February 2002 that, "As mobile phone penetration grows towards 100 percent, so our focus increasingly shifts to attracting higher-quality new customers and building the loyalty, usage and average revenues of our existing customers." Nevertheless, Orange/France reported that its ARPU declined from €426 ($371) in 2000 to €392 ($341) in 2001. This decrease continued in the first quarter of 2002, as for most other operators, because the number of Orange subscribers continues to grow faster than its revenues, according to CIT Publications.

Operators are focusing on MVPNs, content, m-commerce, and WLANs

One trend encouraging further mobile penetration in France is investments to develop a wholesale market for mobile services, using mobile virtual private networks (MVPNs), as in Germany. Kagan World Media expects 3G operators such as Bouygues to form partnerships with third parties such as Swedish operator Tele2, which is already operating MVPNs outside Sweden. It expects such MVPNs to seize 11 percent of the French market for 3G services by 2004.

Wireless LANs (WLANs) have attracted the interest of the two leading French mobile operators, Orange and SFR. Both firms are considering possible uses of WLANs, which they view as complementary to 3G wireless, not competitive with it, according to *Global Mobile*. However, the 2.4 GHz frequency band used by WLANs is restricted to private

[323]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.
[324]Ibid.

use in France. The French government issued a notice of public consultation in December 2001 on the future use of WLANs, which might lead to liberalization of the rules for this spectrum band.

As in the wireline sector, French mobile operators seek to limit their costs and find a new revenue model that will allow them to earn revenue from the content that they provide. One model that is being seriously studied is the successful Minitel revenue model whereby the operator collects revenue from users and shares it with content providers (described later in this chapter).[325] Vodafone of the United Kingdom and Vizzavi, a French Internet portal company owned by Vivendi Universal, announced in January 2002 agreement upon a similar business model, whereby Vizzavi would earn up to five percent of a mobile operator's airtime access revenues, according to CIT Publications. In addition, Vizzavi would reportedly earn 80 percent of all revenues from user payments for premium content services such as ring-tones and games. Vivendi Universal is exploring various options to use mobile phones to deliver its media content such as via SIM cards, media cards and memory sticks that would allow downloading information into the phone and uploading it into a computer. This could lead to "killer applications" to drive the demand for 3G wireless in France and elsewhere.

Like other European operators, French operators are also exploring ways of developing mobile e-commerce (m-commerce) via SIM cards. One promising option they are considering is using SMS to confirm a transaction over a mobile phone; such a system is a more user-friendly means of transmitting a PIN code to authorize a transaction than attaching an encryption device to computers. SMS is more likely to succeed than any computer-based solution for e-commerce because mobile phone penetration is more than twice the level of computer penetration in France. French operators are also developing mobile applications in automobiles. Ford, Renault, and Peugeot formed a joint venture in March 2002 for motorists to obtain wireless access to emergency assistance, navigation services and weather forecasts. An interactive technology may grow out of the efforts of Toyota to experiment in France with interactive global positioning systems (GPS) to replace the one-way communication of existing GPS, which is based on CD-ROMs.[326]

Mobile operators are targeting the business segment

French mobile operators such as Orange consider the largest untapped market for mobile applications to be among business managers, according to industry observers.[327] However, there are not enough simple mobile applications on the market that make sense to business managers who do not understand the differences between one telecommunications technology and another. In France, as elsewhere, the mobile market continues to be driven largely by individual consumers, and even large companies do not have many mobile devices. However, large French companies are cautiously increasing their budgets for mobile applications, because they

[325]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[326]Ibid.

[327]French trade association official, interview by USDOC staff, Paris, Nov. 16, 2001.

recognize the potential for integrating m-commerce into various company operations, such as procurement, under the management of a telecommunications professional.[328]

New regulatory framework in 2003

Like other EU Member States, France will have to transpose the new EU regulatory framework for electronic communications (described in Chapter 2) into national law by June 2003. The Chairman of the ART, Jean-Michel Hubert, said in October 2001 that ART welcomed this new framework because it will adapt regulation to take into account increased competition and the convergence of telecommunications and audio-visual networks.[329] He also noted that it should strengthen regulatory harmonization between Member States. He pointed out that European regulatory harmonization is necessary because it reflects the political will of all EU Member States and it supports the growth of a very capital-intensive sector by allowing it to profit from European economies of scale. All countries' regulators increasingly face the same issues, such as how to promote widespread broadband access to the Internet, he concluded, due largely to technological progress and globalization.

INTERNET USE

Despite the Internet's slow start in France (in 1999, France's Internet penetration rate was only five percent[330]), a consensus has developed among French consumers, business, and the government that expanded use of the Internet, through e-commerce, is integral to France's role in the global economy.

France's Internet revolution has been rapid and wide-ranging. As of June 2001, the number of terminals in France connected to the Internet was 12 million, about 40 percent of which were for individual, and 60 percent for professional, use, according to the French consulting firm IDATE.[331] The number of Internet users in France exceeded 21 million in 2001, or more than 36 percent of the population, according to *EITO 2002*. France accounted for approximately 15 percent of western Europe's total Internet users in 2001.

However, in some ways, France is indeed behind the times. Its Internet penetration rate, 36 percent, is less than the western European average of 39 percent, according to *EITO 2002*. Approximately nine million French use the Internet at home, representing just 30 percent of all French households (less than the 37 percent European average). This penetration lag results partly from the inflated price of personal computers. For example, to buy a base PC in France costs twice as much as one purchased in the United States, due in part to France's 19.6 percent value-added tax (VAT).[332]

Nonetheless, most predictions for France are optimistic. *EITO 2002* predicts that France's Internet use will grow at a CAGR of 15

[328]Ibid.

[329]Speech of the ART Chairman at the U.S. Embassy in France, October 16, 2001.

[330]"France: E-Commerce," *The Economist*, Economist Intelligence Unit, October 13, 2000.

[331]As cited in Equipment des Ménages en Minitel," *Tableau du Bord du Commerce Électronique: Indicateurs,* IDATE, www.idate.fr.

[332]French industry representatives, interviews by USDOC staff, Nov. 14-16, 2001.

percent from 2001-2005 to reach 37.5 million users, or 61.8 percent of the population.

Minitel

Unlike any other country in the world, the development and use of the Internet and e-commerce in France have been, and continue to be, directly affected by the presence for nearly 20 years of a well-used online electronic commerce system. To understand the Internet in France requires an analysis of Minitel– France's unique, proprietary online system dating from 1983. Because of Minitel, the French are the world's biggest per-capita online purchasers of goods and services, for which they are used to paying premium prices. The existence of Minitel, its revenue model, and users' experiences and expectations all have the potential to influence and provide ideas for the future directions of the Internet and e-commerce in France and elsewhere.

Minitel is an interactive, dedicated videotext system[333] that was built by FT and runs over FT's telecommunications network.[334] The French use Minitel for a wide range of services, both consumer- and business-oriented. On the consumer side, activities including checking bank balances and paying bills; buying train, movie, or concert tickets; purchasing groceries and flowers; making doctor's appointments; registering for university classes and sports tournaments; undertaking job searches; and accessing an online telephone directory. Business uses of Minitel include performing financial analyses, ordering products, and managing loans.[335]

Minitel traditionally has been accessed through dedicated Minitel terminals, provided for free by FT. Terminals are found in households, businesses, and offices of professionals such as doctors, lawyers, and consultants. A few terminals also exist in public spaces, usually post offices. In recent years, terminals have been joined by Minitel access via PCs, enabled by free software offered by FT.

Because of Minitel's dedicated network, the buyer and seller of services can always be identified, making billing simple. Any Minitel service consumed appears on the user's FT telephone bill, and FT in turn pays

[333]Minitel actually has two parts: Teletel (text-based, and accessible by Minitel terminals or a personal computer), and Audiotel (accessible by phone). The Teletel portion is much larger than Audiotel. In this report, "Minitel" is used generally to refer to the more widely used Teletel portion, which competes with the Internet.

[334]FT has always been the sole provider of Minitel. Although the French regulator ART recently ruled that FT must let competitors offer Minitel using FT's network as well as FT's billing system, some long-time industry participants believe that FT's competitors may not be all that interested in offering the service. One reason is its complexity. However, a bigger issue may be the large amount of pornography and other illegal material on Minitel, which FT is required by law to monitor and remove. Other operators may not be willing or able to spend the money to do so. Further, although a 1993 decree absolves FT of liability when cutting the Minitel service of providers of illegal materials, the decree does not guarantee that potential competitors will not be liable in the same situation. A proposal has been pending French government approval since summer 2001 to extend the 1993 decree to cover other Minitel providers besides FT.

[335]Although large firms use Minitel to some extent, smaller French businesses have been much heavier users of Minitel. Large French firms have tended to use more sophisticated electronic communications systems using dedicated data networks or leased lines and based on the electronic data interchange (EDI) standard.

Minitel's services and content providers. Under the Minitel revenue model, two thirds of the charges go to the content or service provider/host, and one third goes to FT (the transport provider).

Minitel has been and remains a major investment on the part of FT.[336] Nonetheless, Minitel has been extremely profitable, not only for FT but for Minitel's services and content providers, who all share in Minitel's profits. In fact, industry experts note that the largest fortunes made in France in the last 15 years have been in Minitel– by developers of Minitel technologies, as well as content and services providers.[337] Minitel's revenues increased steadily from its establishment in 1983 until 1998, when revenues reached 8 billion FF ($1.1 billion). Although they remain high, revenues have fallen since then due to competition from the Internet.

Minitel and the Internet

Because of the existence of Minitel, the French– Minitel's users as well as providers– for the most part ignored the Internet and its uses until well after many of France's European neighbors had begun to embrace and adopt it. The Internet was considered a U.S.-centric online system, which the Minitel-using French did not need. In addition, the Internet required PCs, considered an unnecessary expense since Minitel terminals were free. Awareness of the potential of the Internet did not arrive in France until approximately 1998.[338]

When large-scale interest in the Internet finally did reach France, many observers both inside and outside of the country thought that the Minitel system was finished. These included providers of Minitel services themselves. During 1998-1999, many Minitel businesspeople sold their Minitel companies to work in the new Internet units of large conglomerates or start new Internet firms.[339] These seasoned managers brought with them years of experience in online commerce, management skills, knowledge of their markets, and cash (which they could use to raise more money). At the same time, as in the United States and elsewhere, there arose new Internet companies run by young students with little money or experience. Overall, thousands of new Internet-based businesses were launched in late 1999 and early 2000 in France, many targeted at the B2C e-commerce market, right when the Internet sector began to crash in the United States and worldwide.[340]

As a result of the Internet downturn, many French Internet firms went bankrupt. Failure for the most part was among those firms run by younger, inexperienced people, although some of the firms run by former Minitel managers failed as well, mostly due to the

[336]Some industry observers think FT invested too much in Minitel. French industry representative, interview by USDOC staff, Paris, Nov. 14, 2001.

[337]As one industry observer in France explained, compared to the Internet, Minitel has required relatively small investments, but all parties involved– FT, hosts, service providers– make a lot of money. In the case of the Internet, network and service providers have made huge investments and "hope to make money." Ibid.

[338]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[339]One observer noted that many of these people spent more money getting into the Internet than they had made in Minitel. French industry representative, interview by USDOC staff, Paris, Nov. 14, 2001.

[340]Ibid.

lack of demand. Many of the Minitel managers who got into the Internet have bought their Minitel companies back. The collapse of much of the initial exuberance of making money via the Internet and the return of managers to the Minitel business has brought a resurgence of interest in providing Minitel services in France.

Minitel remains widely used, but its popularity is declining

Minitel use remains high. There were approximately 15 million Minitel users, and 8.5 million Minitel terminals (including dedicated Minitel terminals and PCs running Minitel-emulating software), in France in 2000.[341] The value of services sold over Minitel in 2000 was €581 million ($511.3 million). According to FT, the use of some of Minitel's key services, namely online banking and online professional services provided by legal firms, accountants, consultants, and the like, remained steady between 1997 and 2000. Although Minitel use continues in large part because people are satisfied with the system, FT's decision to offer free, downloadable software with which to access Minitel via PC has helped keep Minitel popular, particularly in businesses. The relatively low 30 percent home Internet penetration rate has helped keep home Minitel use from falling rapidly, although this is changing.[342]

Despite these figures, Minitel's overall use is without a doubt declining as the Internet becomes more popular. Observers point out that Audiotel (the audio portion of Minitel) is growing more quickly than Teletel (the text portion) because of competition from the Internet. Minitel services that compete more directly with the Internet, namely online gaming/entertainment and uses such as looking up directions or names and booking travel tickets have fallen. FT reported that total traffic on Minitel dropped 19.5 percent from 1996-2000, from 84.8 billion to 68.3 billion hours, with 11 percent of this decrease occurring solely from 1999-2000.[343] The percentage of French households with Minitel equipment (dedicated terminals or Minitel-enabled PCs) fell from 18 percent in 1996 to 16 percent in 2000.[344]

Further, households using Minitel tend to be older, indicating that Minitel's popularity is waning among younger French people. The 40 to 59-year-old age bracket– known as the "Minitel generation" – accounted for nearly one quarter of all household Minitel terminals in 2000, according to FT. In contrast, the 30-and-under age bracket accounted for only 7 percent.[345] FT has attempted to stem this decline among younger users, such as by partnering with Yahoo! to offer access to Yahoo! e-mail via Minitel. However, such services are limited, as Minitel cannot support e-mail attachments. Many analysts believe that younger French people who are used to

[341]As cited in "Equipment des Ménages en Minitel."

[342]"Equipment des Ménages en Micro-Ordinateurs," *Tableau du Bord du Commerce Électronique: Indicateurs,* IDATE, www.idate.fr.

[343]This includes use by firms and households but does not include use by "professionals" such as doctors, lawyers, and consultants. As cited in "Evolution du Trafic et des Services Minitel," *Tableau du Bord du Commerce Électronique: Indicateurs,* IDATE, www.idate.fr.

[344]As cited in "Equipment des Ménages en Minitel."

[345]Ibid.

the Internet likely will not want to switch to Minitel.[346]

For now, many people believe that Minitel and the Internet will co-exist in France for some time. Observers point out that the two systems generally do not have the same users. Many people who use Minitel tend to be older, aren't interested in PCs, and don't desire to "chat," surf content, or use other services unique to the Internet and the web; these people are more than happy with Minitel's offerings. Many French state that Minitel is quick and convenient, in many cases more so than the Internet, for basic activities such as accessing online directories, checking train schedules, and ordering tickets. Even for those connected to the Internet via a 56kbps modem, Minitel can be faster and easier to use. Minitel users point out that some services in France can only be done over Minitel, not the Internet, such as registering for university classes and for sports events, including golf tournaments.[347]

At the same time, many French realize that the Internet has numerous obvious advantages over Minitel. The Internet is worldwide, has much more information, and its larger bandwidth (Minitel has very little bandwidth) offers better graphics, including pictures, than the text-based Minitel.[348]

What can be learned from Minitel?

There are varying opinions on the relationship between Minitel and the Internet. Some analysts state that although the Minitel hindered France's Internet adoption at first, the Minitel system prepared France well for rapidly catching up in use of the Internet by fostering one of the more advanced "keyboard cultures" in the world, with a predilection for online information gathering and commercial promotion. At the same time, others do not see a close relationship between France's past use of Minitel and use of the Internet, pointing out that were this the case, France would already be Europe's number one Internet user.

In either case, Minitel has the French accustomed to paying a subscription fee and time-sensitive charges for online services, and paying premium prices for them. Minitel's revenue model, shared between telecommunications operators and service/content providers, has proven to be very successful. People in France and throughout Europe are looking at it closely for ideas for revenue models in such areas as mobile Internet services.

The principal challenge appears to be to transfer the sense of security users feel using Minitel, which is a closed system, into Internet-based e-commerce in France. Further, the Internet has yet to resolve online commerce payment challenges as successfully as has Minitel. Both of these factors are key to why e-commerce over the Internet has not taken off yet in France. Although it was widely reported in the French press in November 2001 that e-commerce on the Internet in France had for the first time just

[346]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.
[347]Ibid, and "France Catching up to the Information Society," U.S. Department of State, Unclassified Cable, July 27, 2001.
[348]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

exceeded e-commerce on Minitel, the most popular uses of the Internet were making train reservations and using telephone directories– basically an extension of Minitel.

The French government is promoting Internet deployment and use

Until late 1997, France's adoption of the Internet and e-commerce was not a priority of French government policy. Instead, the government focused its "modernization" policies on two main areas in the 1990s, namely preparing for France's integration into the European Single Market and then into the euro zone. In addition, the government had another priority in terms of technology policy– liberalizing and promoting competition in France's telecommunications sector, as required by the EU's Telecommunications Services Directive (the Single Market and the EU directive are detailed in Chapter 2).[349]

Like its citizens, the government began to recognize the beneficial applications of the Internet and its potential in the late 1990s. Government policies since then have helped promote the increasing use of the Internet in France. To overcome what government ministers admit was a "late start" for France's Internet adoption, then Prime Minister Lionel Jospin made France's entry into the "information society" one of the government's top priorities in 1997, in particular, to help France catch up with other countries in terms of use of the Internet and e-commerce.

In 1997, the government developed plans for a framework of legislation for telecommunications, the Internet, and e-commerce, which aimed to address policy issues related to the Internet. This overall package of legislation is known as the "Law on the Information Society" and is expected to be approved by fall 2002.

In January 1998, the government launched its Government Action Program for an Information Society (PAGSI), which included a major set of measures and policy goals to help the French adopt the Internet. PAGSI's main thrusts were developing digital literacy, stimulating research and development (R&D) and innovation in digital technologies, and adapting French laws to the regulation (and promotion) of the Internet.

According to the French government, which devoted 9 billion FF ($1.2 billion) from 1998 through 2001 to it, PAGSI has removed many obstacles that had hindered the development of the Internet in France.[350] Among other things, the program helped raise IT and Internet usage in schools, businesses, and government agencies, and created more widespread access to the Internet among households. Under PAGSI, the government liberalized laws on stock options, which has encouraged start-ups, and provided financial support to help French firms invest in IT. The government also made electronic authentication legally binding, liberalized restrictions on the importation of encryption technologies, and extended many existing

[349]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[350]For a complete description of PAGSI programs and results to date, see "Four Years of Government Measures to Promote the Information Society," Premier Ministre, Service d'Information du Gouvernement, August 2001.

French laws regarding mail-order delivery to Internet transactions.

The government is trying to build on these successes. In 2001, it announced its next round of priorities for the coming years. Although many French citizens now have Internet access, France has a digital divide (like other developed countries) and the government is making a concerted effort to bridge this uneven and sometimes inequitable access to the Internet, particularly at high speeds. In July 2001, then Prime Minister Jospin announced the goal of nationwide access to high-speed Internet within 5 years.[351] To meet this goal, the government and banks jointly will finance low-interest loans totaling 10 billion FF ($1.4 billion) to local governments to install fiber-optic local loops in the 25 percent of French communities/ regions unable to use cable or DSL for technical reasons or because their population is too low to attract ISP investments. This endeavor stems not only from internal priorities, but also adheres to the EU's directives and guidelines related to the Internet and e-commerce, including the EU's *e-Europe* initiative.

The government also has allocated 500 million FF ($68.2 million) to finance a three-year effort to improve cellular phone coverage in areas now excluded. Other planned allocations include $700 million over the next three years to open more than 7,000 public Internet access spaces, including in employment agencies and public libraries, many of which will offer IT training to citizens; and $150 million for IT research and development (R&D), focusing on new Internet-related technologies.

However, some initiatives which could pave the way for increased use of the Internet and e-commerce in France have stalled. As of summer 2002 France had not implemented the EU's E-Commerce Directive (despite a deadline of January 17, 2002).

Household Internet use[352]

France's household Internet penetration rate, 30 percent at the end of 2001, is among the lowest in Western Europe. Factors for this lag include a low home PC penetration rate (27 percent in 2000, lower than most other western European countries, including Italy and Spain),[353] local telephone charges which keep Internet access costs high, a lack of flat-rate dial-up Internet access (AOL/TW is the only ISP offering flat-rate dial-up Internet access in France), and continued reliance on the Minitel system.

Nonetheless, French households' adoption of the Internet over the past year has been rapid, more than doubling the 2000 household penetration rate of 12 percent. The growth in home Internet use has mirrored the growth in home PC penetration (up from 19 percent in 1998) which has been driven by falling PC prices. Home Internet use is predicted to continue to rise rapidly. As mentioned earlier, approximately 800,000 French homes were connected to the Internet via broadband as of March 2002.

[351]"France Plans High-Speed Internet Access for All," Reuters, July 21, 2001.

[352]Unless otherwise cited, the figures in this section are from INSEE, "Permanent Investigation into the Living Conditions of Households," no. 106, March 2001.

[353]"Equipment des Ménages en Micro-Ordinateurs."

Business Internet use

Internet use among large French businesses was 89 percent in 2000, and the majority of large French firms also have web sites.[354] For the most part, these are static sites to establish an Internet "corporate presence" for marketing purposes and do not provide interactivity with customers, suppliers, or allow for e-commerce. Many firms are investing in technologies to develop website interactivity. This is more the case in larger firms, but is slowly filtering down to smaller French firms. In fact, larger companies are starting to push their smaller suppliers to go online.

Approximately 75 percent of French SMEs had Internet access at the end of 2000, with an average of four PCs connected to the Internet, according to the BNP Parabis Lease Group.[355] As in the United States, SME use of the Internet for more than basic research or e-mail is quite low. Although the percentage of French SMEs with websites jumped from 13 percent in 1998 to 40 percent in 2000,[356] these sites tend not to be interactive, and French SMEs reportedly are aware of their need to invest more in interactive technologies.

Internet use in schools

While nearly all French schools are connected to the Internet,[357] in 2001 there were fewer than five PCs connected to the Internet per 100 French pupils.[358] The French government has earmarked $85 million in no-interest loans to assist public schools in purchasing Internet equipment.[359] The government aims to continue to help the entire French educational system, especially primary schools, access and use the Internet. It is focusing on teachers as well as students. For example, all new curricula for teacher training include courses in information and communications technologies.[360]

E-COMMERCE

E-commerce in France currently continues to be conducted largely via France's

[354]"France: E-commerce/ Direct Marketing Through the Internet," *Industry Sector Analysis,* U.S. Department of Commerce/ U.S. Commercial Service, France, 2001.

[355]Italy also had four PCs connected per SME, Spain five PCs connected per SME, and Germany six PCs connected per SME. As cited in "Equipment des Enterprises en Accès Internet," *Tableau du Bord du Commerce Électronique: Indicateurs,* IDATE, www.idate.fr.

[356]As cited in "Enterprises Disposant d'un Site Web," *Tableau du Bord du Commerce Électronique: Indicateurs,* IDATE, www.idate.fr.

[357]The press recently reported that 100 percent of French schools had Internet connections. However, this number could include schools with one computer connected to the Internet as well as those with Internet-equipped computers in every classroom.

[358]"eEurope 2002: eEurope Benchmarking Report."

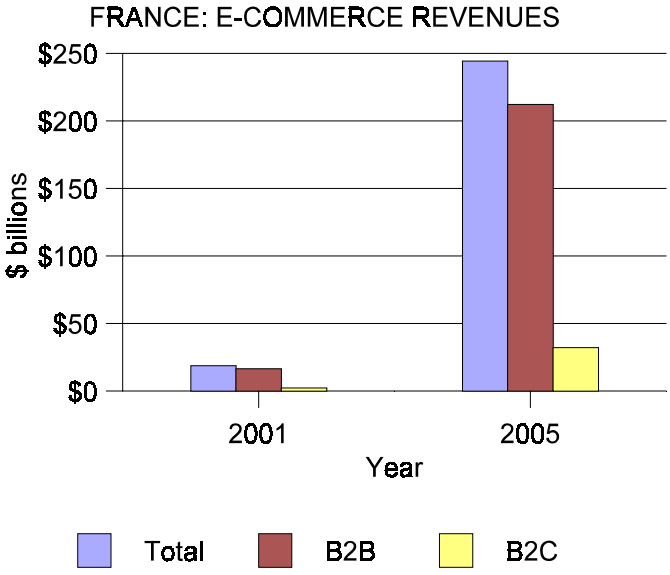
[359]"France: Internet," *Industry Sector Analysis,* U.S. Department of Commerce/ U.S. Commercial Service, France, August 2000.

[360]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

longstanding online methods, Minitel and electronic data interchange (EDI). Nonetheless, the growing number of people using the Internet in France is spurring a rapid acceleration of Internet-based e-commerce use.[361] E-commerce sales increased dramatically in France from $200 million in 1999, eight percent of e-commerce in western Europe, to $1.8 billion in 2000, 13 percent of Western Europe's total.[362] By 2001, France's total B2B and B2C e-commerce revenues were €21.1 billion ($18.6 billion), according to *EITO 2002*.

EITO 2002 predicts that France's total e-commerce revenues will rise at a CAGR of 90.4 percent (faster than Germany's CAGR of 77.6 percent) to €277.6 billion ($244.3 billion) in 2005. This will be facilitated by the resolution of such problems as Internet security and payment mechanisms, which inhibit more rapid uptake of e-commerce in France, are addressed (Figure 4-6).

Figure 4-6



Source: EITO 2002

M-commerce?

Like in Germany, e-commerce via mobile devices is expected to have much potential in France given the country's low penetration rates for PCs and mobile devices, particularly once 2.5G or 3G technologies become widely used.

B2B e-commerce via the Internet remains limited

France's B2B e-commerce revenues in 2001 were €18.6 billion ($16.4 billion), according to *EITO 2002* (Figure 4-6). Although French firms are heavy users of online transactions, as of yet, these are generally not via the Internet. Small French firms still rely heavily

[361]Unless otherwise stated, the discussion of, and figures on, e-commerce in this section refer only to Internet-based electronic commerce, as opposed to commerce conducted via Minitel or EDI.

[362]"France Catching up to the Information Society."

on the Minitel system, and large firms tend to use EDI. [363]

In fact, EDI use is very widespread in France. It took off in France in the late 1980s, and many large French firms have invested substantially in EDI technologies in the past few decades. Although French firms from all industries use EDI, its use has been heaviest in those industries most reliant on just-in-time systems, namely automotive and distribution.

Now, French firms of all sizes are migrating their electronic transactions to the Internet. Firms began to invest heavily in B2B e-commerce technologies in the late 1990s, although like in most other countries, after much hype, the initial fervor over B2B e-commerce has subsided. Many large B2B marketplaces have failed, although some specialty ones remain.

As in other countries, large firms in France are the leading investors in B2B technologies, and impressive examples exist. One is Schlumberger, France's multinational oil company, which reportedly manages online all of its relationships with its users, and has a B2B database enabling it to supply spare parts to offshore platforms anywhere in the world.

For the most part, French firms' current spending on e-commerce targets those technologies they hope will impact their bottom line the most quickly, such as e-procurement. In addition, business portals, aimed at attracting and keeping customers, are becoming popular. Business observers note that many French firms use packaged solutions to make building and maintaining portals easier and less costly.

The future of B2B is promising

Many people believe that French firms' longstanding experience using online communications systems, whether Minitel or EDI, has laid the groundwork for a successful transition to their use of Internet-based B2B e-commerce. For one, French firms are accustomed to automated business transactions. Further, analysts believe that, because French firms have invested for decades in technologies to enable online communications, the newer e-commerce technologies are just another step in this process. Therefore, they do not necessarily expect e-commerce technologies to change their economic structures and performance rapidly. Instead, although they expect the technologies to change their business processes significantly, they expect the return on investment to be long in coming.[364] These tempered expectations could, in the end, translate into relatively well-thought out, and therefore successful, B2B implementations in France. Despite the bumps, B2B e-commerce is rising dramatically in France, and *EITO 2002* predicts the country's B2B e-commerce revenues will grow at a CAGR of 89.6 percent through 2005 to reach €241.1 billion ($212.2 billion) (See Figure 4-6).

[363]Information on French firms' use of EDI comes primarily from French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[364]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

B2C e-commerce

As home Internet use has risen, B2C e-commerce in France has risen as well, even though much of the initial euphoria has faded away and many of the independent B2C firms that emerged in France failed or are facing bankruptcy. Nonetheless, the segment offers great potential. One out of every five French Internet users currently makes Internet purchases. B2C sales reached €2.5 billion in 2001 ($2.2 billion), according to *EITO 2002*. Although a considerable number of online transactions in France continue to be conducted via Minitel, expectations are high for growth in B2C e-commerce. *EITO 2002* predicts it will rise at a CAGR of 96 percent to €36.5 billion ($32.1 billion) by 2005 (See Figure 4-6).

Currently, France's B2C e-commerce purchases are similar to those in the United States in that the most common purchases are PCs and peripherals, electronics, music, books, and travel-related services. For example, the French national railroad, SNCF, has its reservation system on the web.[365]

Popular B2C sites are French-owned

In France, the most visited e-commerce sites and Internet portals tend to be French owned.[366] This is due in large part to the fact that U.S. and other foreign firms did not actively approach the French market for several years. French firms filled this void, capitalizing on first-to-market advantages and, critically, their experience with successful online commerce via Minitel. They have developed a large variety of e-commerce sites offering specialty goods, electronic appliances, books, and clothes.

The most successful B2C e-commerce sites now are those run by French firms that already had a familiar presence, online or otherwise, in France. For example, French mail-order companies offer entire catalogs on the Internet. A key reason is that these brand names have helped alleviate worries about personal and financial data when conducting business on the web. The French remain very concerned about the online security of their personal and financial data.[367]

Limits on B2C include low home Internet use, particularly broadband...

As mentioned earlier, France's home Internet penetration rate was only 30 percent at the end of 2001, among the lowest in western Europe. This low rate has helped keep B2C e-commerce use low. In addition, many French continue to use Minitel for online purchases. Increasing home Internet use, particularly via broadband platforms, will be a key factor pushing B2C use.

...very strong security concerns ...

The French perspective on personal data is much more conservative than that of the U.S. public. Generally speaking, French citizens are very protective of their personal data, fear its misuse, and believe that it must be proactively guarded. In fact, a recent survey reported that 75 percent of French people

[365]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[366]"France: E-commerce/ Direct Marketing Through the Internet."

[367]Ibid.

believe that data protection should be regulated by the government, compared to 40 percent of Americans.[368]

It is crucial to understand the degree of concern French Internet users have about the security of web-based online transactions, and the impact this has had on the development of B2C e-commerce there. The same survey found that 83 percent of the French considered the risk of identity fraud on the Internet to be very high, and 67 percent feared that someone would intercept and use their bank card number during an Internet transaction.

The French attitude toward security of personal data is reflected not only in people's hesitancy to provide their personal data to institutions and businesses, including websites, but in the existence and wide-reaching influence of the French data protection agency, the Commission Nationale de l'Informatique et de la Liberté (CNIL). The French established CNIL approximately 20 years ago, reportedly in response to witnessing what France saw as the abuse of personal information in the United States (such as private detectives having relatively easy access to various personal information about U.S. citizens). CNIL is powerful at both the French and EU levels. Notably, CNIL greatly influenced the EU's Data Protection Directive.[369]

The lack of consumer confidence vis-a-vis privacy and the protection of personal and financial data on the Internet has severely hampered e-commerce activities, particularly in B2C, in France. Some French industry representatives believe that the population's security worries are exaggerated. Several trade associations, such as the French Internet Service Providers Association (AFA), have undertaken efforts to educate French citizens on the safety of the Internet. But there are fears that these efforts might backfire by drawing more attention to, rather than allaying, people's security concerns.[370]

...and low credit card usage

A lack of successful e-commerce payment options also curtails e-commerce's potential in France. As in Germany, few people in France have credit cards. Rather, the most common form of payment, besides cash, is via smart cards (which have embedded computer chips). Because money is deducted from a smart card by "reading" it, special terminals are required to conduct smart card purchases– and few French have such terminals at home. Although the terminals are relatively cheap (approximately $20), connecting one to a PC reportedly can be difficult. Further, a USB plug is required, which may be in use for another peripheral device. To encourage e-commerce, one French banking trade association recently lobbied to have smart card terminals provided free to home Internet users. However, the banks wanted ISPs and/or computer producers to provide them. These latter groups had no financial reason to do this, and the idea has been dropped.[371]

Other payment ideas are being proposed and tested by service and technology providers. Because 50 percent of French Internet users have mobile phones, e-commerce payment

[368]Ibid.

[369]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

[370]Ibid.

[371]Ibid.

systems incorporating mobile phones are being considered. One such solution being discussed would require the user to confirm a purchase by responding to an SMS received on their mobile phone for the payment to be authorized.

Purchasing B2C services may be more popular than purchasing goods

Many people believe that as it develops, B2C e-commerce in France will be more popular for purchasing services than goods. Unlike in the United States and many other countries, France's population is fairly densely concentrated in urban areas (in fact, 20 percent of the population lives in the Paris environs) where shopping facilities are numerous and easy to reach. Further, French supermarkets tend to carry a very wide range of goods, which allow shoppers to purchase many different products from one location. Many supermarkets offer delivery, and do not require customers to purchase online to have their products delivered. As a result, demand for online ordering/home delivery of goods in France is lower than in other countries.[372]

Greater opportunities are predicted for more service-oriented B2C niches such as customized information or value-added services that integrate with traditional sales methods (i.e. "click and mortar"). For example, French supermarkets are investing in systems to allow customers to pick up in person goods ordered over the Internet.[373]

Online banking

After getting off to a slow start, France's banking sector is rapidly adopting Internet strategies, offering a growing number of wide-ranging services to businesses and consumers who are accustomed to online financial transactions via Minitel. Despite a decline in 2000, attributed to trends in the stock market, particularly among technology stocks, web-based online banking, already used by 21 percent of French consumers, is growing dramatically as the number of home Internet users rises. Analysts predict that 8.3 million people will be using Internet online banking services in France by 2004.[374] Banks will play a critical role in establishing the payment mechanisms for electronic transactions necessary to encourage more e-commerce in France.

E-government

The aforementioned French government's PAGSI program included the priority of putting government services online. Under PAGSI, the French government prioritized increasing its own use of IT, including the Internet.

The French government has come a long way in achieving its goals under PAGSI.[375] By April 2001, more than 675,000 PCs were in use in French government agencies, at least half of which were connected to the Internet. Electronic access to national government agencies is now a reality, and forms

[372]Ibid.

[373]"France: E-commerce/ Direct Marketing Through the Internet."

[374]"France: E-loaning in France," *International Market Insight,* U.S. Department of Commerce/ U.S. Commercial Service, France, 2001.

[375]"Four Years of Government Measures to Promote the Information Society."

frequently used by individuals, such as social security and tax forms, can be obtained online. According to *EITO 2002*, the government has completely automated three of its key services: VAT declaration, customs declaration, and the filing of social contributions from employees. As of October 2001, approximately 60 percent of administrative procedures could be carried out online, and the government's central portal (www.services-public.fr) directs users to local procedures.

To set an e-commerce example in the country, the French government mandated under PAGSI that all government procurement be conducted electronically, including the submission of bids on government tenders. However, as of 2002 France's public procurement was only about 50 percent automated, according to a European Commission benchmarking study. The government still lacks data exchange protocols and electronic signatures, according to *EITO 2002*.

The French government reports that some of its next steps are to make forms commonly used by businesses available online, and online government services more user-friendly.

CHAPTER 5: MARKET OPPORTUNITIES AND MARKET ENTRY STRATEGIES

Germany and France offer U.S. IT and telecommunications small and medium-sized enterprises (SMEs) excellent opportunities because of the projected growth in these markets as well as many end users' preference for and confidence in U.S. technologies. Many IT and telecommunications technologies in demand in both countries are similar to those in demand in the United States, but there remain substantial differences in each country's market. Both Germany and France have a large and growing number of small, competitive technology firms which could provide excellent partnering opportunities for U.S. SMEs, one of the market entry strategies suggested later in this chapter.

Best prospects for U.S. SMEs are in the **niche and high-growth market segments** highlighted in this chapter. These segments are recommended because of the slowdown in spending on many types of IT and telecommunications solutions in Germany and France, as well as the increasingly competitive landscape of technology vendors in more mature IT and telecommunications market segments in both countries. Those U.S. SMEs that adopt the following **market entry/expansion strategies recommended for Germany, France, and western Europe generally** are likely to have the best chances for long-term success.

SECTION I: MARKET OPPORTUNITIES

INFORMATION TECHNOLOGIES

Industry experts interviewed in Germany and France in November 2001 believe that the best and fastest growing IT market segments in their countries are:

1. IT security;
2. Internet and e-commerce-related solutions; and
3. Business productivity solutions.

Drivers of growth in these segments are private-sector needs as well as government policies.

1. IT security.

Snapshot of market segment drivers:

< Information systems security is one of the most rapidly rising priorities of IT investment in western Europe. In general, western European organizations' use of IT and online security lags that of the United States. Organizations are eager to catch up.

< IT security products and services became much more important to German and French firms in 2001 due to the increasing realization of the potential harm that can arise with inadequate protection of data.

< European government efforts and regulations are expected to give the IT security market a further boost. The European Commission and the German and French governments are trying to increase the public's trust and confidence in cyberspace to encourage the growth of e-commerce.

< EU regulations such as the Data Protection Directive and the Electronic Signatures Directive are creating markets for IT and Internet security solutions. The former fosters demand for technologies among those organizations that need to comply with its requirements. The legal framework created by the latter is encouraging investments in technologies and services that underpin the signature system such as digital certificates, encryption technologies, and electronic signatures.

Selected solutions:

Demand for **network security** products and services is growing as German and French firms and other organizations increasingly rely on the Internet for communications and open their LANs to the outside through extranets, including Internet protocol-based virtual private networks (IP/VPNs). Larger firms' more recent demands, spurred by the events of September 11, 2001, have expanded to remote network management products and technologies to ensure redundant systems, such as data recovery and file and web server backup software. Smaller European firms, hit by an increasing number of viruses in the past year, are investing in anti-virus protection, firewalls, and similar solutions.

Internet-related security is a particularly strong market. U.S. advances in Internet security are widely recognized in western Europe, and there is the perception that the most efficient tools related to Internet security come from the United States. U.S. SMEs that specialize in Internet security tools are in an excellent position to capitalize on their knowhow in the German and French markets.

There is a huge need for **online payment security solutions** for PC-based and mobile Internet access. The demand for products and services that underpin secure cross-border payment systems, including ones that incorporate the euro, is far from satisfied. As more European customers go online, this demand will continue to grow.

There is strong demand for solutions for **securing mobile devices** such as personal digital assistants, mobile phones, and others.

Strategy for selling IT security solutions in France.

French IT firms have demonstrated a great deal of expertise in the design of security solutions, including those directly related to the smart card business. This can bring valuable partnership opportunities for U.S. SMEs with security technologies that can complement French firms' offerings to create a more comprehensive security solution for end-users.

2. Internet and e-commerce solutions.

Snapshot of market segment drivers:

< Western Europe is six to twelve months behind the United States in the use of Internet and e-commerce solutions, and European firms are keen to improve their competitiveness and efficiency so that they are on par with their U.S. counterparts.

< Governments in Europe, to improve the overall strength of European economies, are eager that their firms invest in these technologies. Further, European governments have committed themselves to promoting e-government, e-health, distance learning, and e-procurement.

Selected solutions:

In general, European organizations need a wide variety of Internet and e-commerce solutions. Larger European firms are investing in advanced solutions such as **customer relationship management (CRM), supply chain management (SCM), and e-business.** Smaller firms are spending on basic versions of these solutions as well, particularly in CRM and e-business.

The current effort of large European firms to link e-business investments to overall corporate strategies has resulted in a growing demand for **professional Internet and e-commerce consulting services**, including strategy, design, and deployment. Many small and medium-sized European firms are eager to develop such strategies as well. This offers opportunities for small U.S. consultants to partner with local consultants or establish their own offices in the region.

In France, many companies reportedly are willing to use small IT consultants, even individuals, who have a specialized skill. However, in Germany, the tendency to be conservative in technology purchases and a preference for larger consultants during this current economic slowdown may preclude smaller U.S. consultants from being successful there, at least in the short term.

There is strong demand for attractive and localized **web content**, as well as **content creation applications**, to drive greater use of the Internet. Many organizations in Europe are eager to or need to make money from the web, driving demand for web site billing and tracking technologies to enable online advertising and paid content. In addition, the European Commission's *eEurope 2005 Action Plan* includes a commitment to promoting attractive content, services, and applications for all Europeans, localized to reflect Europe's diversity of cultures and languages.

Given the relatively limited deployment of broadband in western Europe compared to the United States, particularly among households, U.S. technology vendors should consider focusing at least for the short and medium term on **Internet content solutions that can optimize narrowband access**.

There is a huge need for new and unique **web content for mobile devices** to drive demand for mobile data communications.

Unique aspect of western Europe's market for Internet and e-commerce solutions.

Market intricacies and differences in Internet and e-commerce adoption trends mean that some U.S. solutions may not succeed or must be modified for the markets in western Europe. For example, low credit card usage in the region creates opportunities for e-commerce and online financial transaction applications and services that do not require credit cards. European financial institutions are investing solutions to allow web-based vendors to debit online shoppers' bank accounts. One niche in this segment is smart card-based solutions for e-commerce applications, which are a key market opportunity due to the widespread use of smart cards in western Europe.

3. Business productivity solutions.

Snapshot of market segment drivers:

Although many large European firms already have automated many of their internal processes, many smaller firms have not, and they are investing in various types of business software.

Firms of all sizes need solutions to maximize their data storage as the use of intranets, extranets, and web sites grows.

Selected solutions:

Smaller European firms are beginning to invest in enterprise resource planning (ERP) software and other business productivity solutions, and there is a niche for U.S. SMEs which make affordable **ERP and other business software aimed at the small firm market**.

For firms of all sizes, rising data storage needs are driving demand for **data storage** solutions. Many European firms that purchased storage hardware in the past now need to maximize that hardware's capabilities via storage software and services. Redundant data storage needs are growing as concerns about intellectual property backup have been spurred by the events of September 11, 2001. In addition, organizations in the EU may need or decide to mirror their data to comply with data protection regulations at the national and EU levels that preclude the easy transfer of personally identifiable information.

"Vanilla" applications

German and French IT market specialists report a strong concern of European firms and other organizations about protecting the integrity of their data as they migrate technologies. End-users increasingly seek cost-effective "vanilla" applications that integrate easily with existing technologies. They also are looking for platform standardization to lower hardware and software costs.

TWO MAIN END-USER IT MARKET SEGMENTS TO TARGET IN THE REGION

1. Key vertical markets: banking and financial services, government, business services, and telecommunications.

These four vertical markets lead IT spending in western Europe. Nonetheless, other vertical markets such as manufacturing, retailing, insurance, education, health, and utilities have 2001-2002 IT spending growth rates of between approximately 4 and 8 percent, according to IDC's April 2001 telebriefing.

2. SME end-users.[376]

Numerous industry representatives interviewed in Germany and France state that Europe's SME end-user segment is one of the best for U.S. IT SMEs to target. The principal reasons for this are:

< The SME market segment is extensive. There are more than 19 million SMEs in western Europe, and SMEs make up more than 99 percent of all businesses in most EU Member States.

< Many SMEs in western Europe are not yet frequent users of IT, particularly e-commerce solutions.

< The SME market segment is largely untapped. For years, IT vendors in Europe

[376]Small and medium-sized enterprises (SMEs) are defined in Europe as having up to 250 or 300 employees. The common definition in the United States is 500 or fewer employees.

Competitive advantages of U.S. IT SMEs.

Competition in the region from European IT solutions providers, notably German, French, and U.K. software producers, has risen in the past few years. Local firms have become more conversant in Internet and e-commerce technologies. Nonetheless, U.S. SMEs have advantages over their foreign counterparts which they can leverage to enter and succeed in markets in western Europe.

< U.S. information technologies are viewed as reliable and effective in Europe. U.S. IT firms have an advantage over their European counterparts due to a faster time-to-market cycle and a reputation for efficiently meeting the needs of clients.

< U.S. IT firms are considered to have an edge due to their experience in the larger, more mature, and more homogeneous U.S. market, in which they can more easily and quickly market new technologies and ideas, as well as gain experience.

< U.S. IT firms understand the latest trends in the U.S. IT, Internet, and e-commerce markets, which are more advanced than markets in Europe.

< Many technologies associated with the Internet, including Internet Protocol (IP) and Java, were invented in the United States. U.S. firms are viewed as being at the forefront of these technologies.

did not target the SME market aggressively, preferring to focus on the large firms. Although some large vendors recently have revamped their products and marketing strategies to target SMEs, much room for competition remains.

< Prices of larger technology vendors remain too high for many European SMEs.

< Due to European technology vendors' lack of experience in selling to SMEs, U.S. IT firms with a track record of serving the SME market in the United States are at an advantage in western Europe. However, U.S. firms should keep in mind smaller European firms' cost constraints and concerns, while recommending and pricing technologies accordingly. In addition, many small European companies lack knowledge about IT options. Information about technologies, including the best technologies for a firm's particular business goals, would be well-received.

What about targeting large European IT end-users?

This end-user market often can be very difficult for U.S. IT SMEs to penetrate. Industry observers state that large European end-users often prefer, and can afford, to procure technologies and IT services from larger, well-established vendors with track records of serving large clients. In addition, many large European firms want to work only with their established technology providers, integrators, consultants, or distributors. These preferences have been amplified during Europe's economic slowdown as European organizations take fewer risks on their technology purchases.

Serving Europe's large end-user market is not impossible for small U.S. firms. To reach this market, European industry representatives suggest that small U.S. firms work with a large, third-party technology vendor such as a systems integrator (SI) with large firms and organizations as its clients. The large SI could integrate the U.S. firm's technology into its solutions for the end-user market.

TELECOMMUNICATIONS

Industry experts interviewed in Germany and France in November 2001 believe that the best and fastest growing telecommunications market segments in their countries are:

1. **Value-added services;**
2. **Broadband; and**
3. **Mobile data communications.**

Solutions that address these market segments are the best prospects for U.S. SMEs. Drivers of growth in these segments are private-sector needs as well as government policies.

1. Value-added services.

Snapshot of market segment drivers:

< The ability to make money from value-added services has become critical for many firms' survival. This results from the following three developments: telephone service markets in Germany and France have become more competitive, prices for many voice services have dropped, and telecommunications operators struggle under unprecedented debt burdens due primarily to overexpansion in the late 1990s.

Selected solutions:

There is demand for leading-edge technologies to enable operators to offer a wide variety of such services, including **broadband access services, broadband provisioning content and application delivery, managed data networks, web and data hosting, IP/VPNs, and other value-added services that use IP for data communications**.

Many operators in Europe who are rolling out voice-over IP (VoIP) on a limited scale eventually would like to use VoIP much more widely to cut costs, and thus are on the lookout for the best **VoIP technologies**.

2. Broadband.

Snapshot of market segment drivers:

< There is a dearth of broadband in Europe. Businesses and consumers seek broadband connections, and both incumbent and competing operators are rolling out technologies to meet demand.

< The EU, eager to hasten the deployment of broadband Internet access throughout the region, has shifted from focusing nearly exclusively on promoting DSL and 3G to a new emphasis on stimulating competition among all possible types of broadband platforms. These include satellites, 3G and other mobile technologies, fiber optics, wireless local loop, DSL, and cable modems. Opportunities abound for U.S. vendors of any and all broadband technology platforms that can help operators and European governments meet these EU demands.

Selected solutions:

Because DSL and cable modems have taken off as the initial broadband technologies in western Europe, technologies related to these platforms provide some of the best market opportunities: **DSL in the near term and cable modems in the medium term**. There is a need for technologies to increase the speed and reliability while lowering the cost of DSL to hasten its deployment, particularly among medium-sized and larger corporate

clients as a potential alternative to leased lines. Less than 20 percent of cable TV infrastructure in western Europe has been upgraded to support two-way transmissions. Operators need further investment and technologies to continue to upgrade their cable TV networks. This is particularly true for those operators in some countries that have just purchased cable TV networks from incumbents and are eager to see a return on their investments.

There are opportunities for U.S. vendors of **broadband technology platforms aside from DSL and cable**. **Interactive digital TV** is believed to have much potential in the region (albeit over a longer term horizon in Germany and France than other countries), and there is a demand for hardware and software to allow set-top boxes to offer new services necessary to drive future growth. Broadband via **satellite** is in the planning stages.

Media companies and telecommunications operators need **attractive, practical, and robust applications and content to drive broadband adoption** across Europe, particularly among consumers. There currently is no "killer application" to convince the majority of European consumers they need broadband, let alone to pay for broadband content. Applications in the areas of e-work, e-education, e-government, e-health, and e-entertainment could help provide such demand.

3. Mobile data communications.

Snapshot of market segment drivers:

< As the European mobile market nears saturation, mobile operators are switching from customer acquisition to maximizing average revenue per user (ARPU). Overall, despite the advances to date in mobile data communications in Europe, many technologies are still emerging and there is huge room for improvement.

Selected solutions:

There is a demand for all of the technologies that can enable the mobile market, including **voice recognition software, compression technologies, and algorithms**.

European telecommunications operators are eager to roll out 3G mobile networks as soon as possible to begin to recoup their enormous investments in obtaining licenses for 3G wireless and to survive the 3G shakeout that is expected. Many analysts believe European markets are not large enough to support the number of 3G licenses that have been issued. As a result, there is an extensive need for **3G infrastructure**, particularly that which allows 3G to reach its theoretical maximum transmission speeds and thus live up to the public's expectations.

In the near term, there is a major opportunity for solutions to **improve the connection speeds, capacity, and capabilities of current GSM/GPRS networks**. Limited bit rates in the GSM network currently preclude quality downloads or real-time streaming. New types of billing technologies based on volume usage as opposed to time are needed

as the migration from GSM to GPRS (and eventually to 3G) brings a conversion to packet-switched data transmission modes.

Despite the fact that it has not been chosen yet by any European operator, EDGE is also expected to take off in the region and solutions to enable **EDGE networks** are in demand as well.

As they become ubiquitous throughout western Europe, mobile networks themselves are no longer an end in themselves. Mobile telecommunications operators need **unique, high-quality mobile content and services** to differentiate themselves from their rivals and increase average revenue per user as they struggle to try to lead the markets for 2.5G and 3G. For example, software for personalized mobile data services is considered to be a strong market.

Although western Europe's mobile data market currently is driven largely by consumers, operators are counting on businesses being their main customers for 2.5G and 3G at least for the foreseeable future. As a result, there is a need for intelligent **mobile solutions and content which make sense to, and meet the needs of, business managers**. In particular, there are great opportunities for the custom development of mobile solutions for businesses.

Many operators in Europe are eager to capitalize on the popularity of short message service (SMS) and its proven ability to bring in revenues, particularly because of the uncertainty of when mobile web access will finally gain widespread acceptance or use. Profits from message services also are seen by many operators as a way to help finance their 3G outlays. Technologies that can allow the deployment of the **future generation of mobile message services** (beyond SMS) have taken on prime importance. These include technologies to allow unified messaging, enhanced message services (EMS), multimedia message services (MMS), e-mail transfers supporting attachments, and increased messaging security.

Although there are already significant security technologies available in western Europe, they have not yet won widespread acceptance by mobile consumers. The need for more effective **security solutions for wireless devices**, including personal digital assistants and mobile phones, is vast. Many Europeans predict that their mobile terminals of the future will essentially function as electronic wallets, performing identification, authentication, and payment. As a result, operators and service providers seek technologies to guarantee high security for transactions to push the growth of m-commerce and corporate mobile services.

Location-based services are still fledgling in Europe as they are in the United States. However, many European operators are eager to offer such services. In fact, certain automakers selling into European markets reportedly are looking to install two-way global positioning system (GPS) technologies directly into automobiles. Solutions including middleware systems that manage an array of geographic databases and serve to support the development of location-based services are in demand.

Mobile communications terminals are taking on increased significance as they

determine the range of services that can be offered. Advances in memory capacity are crucial to allow more rapid downloads and real-time audio or video streaming. **Terminal components** such as smart cards, memory sticks, and media cards need to be optimized to enable downloading of information to mobile phones for later upload to PCs. The development of such 2.5G technologies as GPRS as well as 3G will require further progress in the development of embedded applications. Screens that can support fixed and mobile images will be key to enhancing a number of consumer and corporate services, such as restaurant or hotel guides, catalogs, videos, and games. In addition, there is a need for a wider variety of terminals including personal digital assistants and mobile phones incorporating power PC boards, and using more ergonomical design.

Mobile operators seek **viable business and revenue models** that will allow them to profit from content and therefore profit from building and maintaining the mobile networks. There is a need for ideas, technologies, and services and support to help European operators develop and implement such revenue models for the provision of mobile data services.

Q: Can U.S. suppliers be competitive in Europe's more advanced mobile market?

A: Yes.

Many U.S. firms believe that, due to western Europe's lead over the United States in mobile communications, European (as well as Japanese) suppliers will dominate the mobile data markets in western Europe.

European industry representatives state that Europeans have an edge over U.S. firms in integrating mobile, Internet, and e-commerce technologies. However, they concede that U.S. firms lead in many of the underlying Internet and e-commerce technologies that will be critical to newer mobile data services. This allows U.S. firms to be very competitive in this market in Europe.

< 3G is based on Internet Protocol (IP), which was invented in the United States.

< The Java programming language, also invented in the United States, is expected to play a key role in the development of mobile Internet. Java makes possible the development of applications for use on all types of mobile devices. It also enables a wealth of content, including audio, video, and images.

< U.S. firms have broad-based experience with web content delivery, critical to the success of mobile data communications.

TWO KEY END-USERS TO TARGET IN THE REGION'S TELECOMMUNICATIONS MARKETS

1. Competitive operators

Incumbent telecommunications operators dominate the German and French telecommunications sectors, and thus are the largest customers for telecommunications technologies in those countries. Nonetheless, targeting their competitors is the best choice for U.S. SMEs.

< To gain market share, competing operators need new and different equipment and technologies from what Deutsche Telekom AG (DTAG) and France Télécom (FT) use.

< DTAG and FT have longstanding, established relationships with existing suppliers or systems integrators, and a preference to continue to work with them. This fact can make it difficult for new (particularly small) vendors to establish a foothold and sell to the incumbents, according to local market experts. Nevertheless, even large European incumbents prefer to purchase from firms that are no larger than they are themselves.

2. The business segment

Businesses are the primary consumers of value-added telecommunications services in western Europe. Although consumers currently use the majority of mobile services in western Europe, operators are currently targeting their mobile data communications at the business segment in hopes of maximizing their revenues from new applications of this technology.

SECTION II: MARKET ENTRY STRATEGIES

Because of the time commitment, cost, and complexity involved in conducting international business, small U.S. firms should consider focusing their efforts initially on one or two foreign markets versus dispersing limited resources among many. Industry and market experts from various western European countries stress that a U.S. firm should base its choice on the demand for its technologies or service offerings in a particular country. Careful research, thorough planning, and detailed strategies can make the difference between success and failure.

STRATEGY 1: UNDERSTAND YOUR TARGET COUNTRY

As this report shows, despite the efforts toward integration and harmonization in western Europe and the creation of a "Single Market," there can be vast differences between countries' markets due to business and cultural characteristics. Key facts about, and differences between, Germany and France are presented below.

Unique aspects of Germany

1. Germany is very decentralized

Similar to the United States, Germany is very decentralized. Germany's 16 states are quite different from each other, and Germans closely identify with the region of Germany in which they live or from where they come. Each German region and major city is characterized by its own center of gravity and business flavor, and markets, as well as industries, differ by region. Northern Germany tends to be more liberal than the south, due in part to the fact that the industrial revolution in Germany began there. Southern Germany tended to be more agricultural until after WWII, when the states of both Bavaria and Baden-Wuerttemberg rushed headlong into the modern age and "caught up" (and even surpassed) the north.

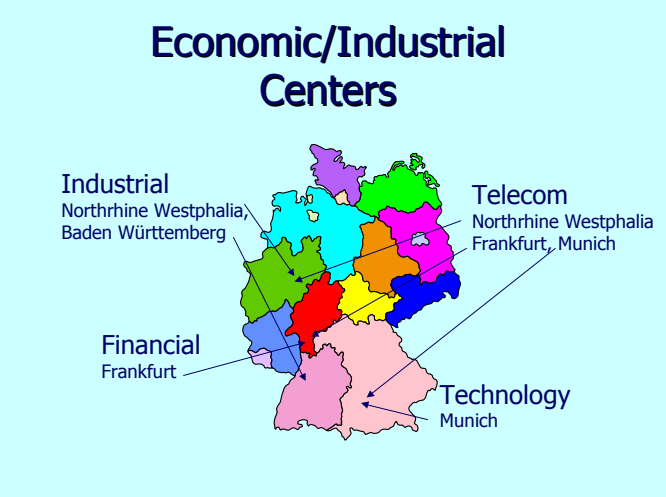
Because the German market is so regional, market experts state that it is important for vendors to be near their German customers, particularly in the realm of service provision. For example, a firm in Hamburg desiring server farm space reportedly often will not be satisfied using space located in Frankfurt or any other location. Rather, the customer might prefer that its server farm space be in Hamburg, where it is close and easy to visit and "touch."

2. Germany's economic and industrial centers are located in various regions throughout the country (see Figure 5-1)

For historical reasons, most of Germany's large firms, including IT and telecommunications firms, are located in southern and western Germany. **Large IT firms, including hardware and software companies**, long have clustered around **Munich, neighboring Stuttgart, and Heidelberg** (e.g., SAP), and their presence has spawned thousands of smaller IT firms, particularly software producers, nearby. In the late 1990s, Munich also developed a very strong venture capital scene. In fact, Munich considers itself the "Silicon Valley" of Germany. For many IT firms, particularly large ones, the Munich/Stuttgart area remains

the first choice for a place to set up business in Germany.

Figure 5-1



However, due to its popularity, Munich is also the most expensive city in Germany. As a result, more and more **start-up firms** have been choosing alternative locations, such as **Berlin**, which has a much lower cost of living (and therefore, lower wages), an abundance of cheap office space, and more than 100,000 students graduating annually from its various universities. In fact, Berlin has become very popular among Internet and other startups due to its low costs and its reputation as a trendy city where many young Germans want to live. Because of its location in the eastern part of the country, Berlin is also popular for its access to central Europe, whose low-cost programmers are often hired by German Internet firms.

Many **Internet-related firms** also have been launched in the northern port city of **Hamburg**. Hamburg has Germany's largest concentration of digital economy companies, and Hamburg-based firms produce the most web content of anywhere in the country. This specialization stems from Hamburg's longstanding reputation as Germany's publishing and advertising hub (there are an estimated 10,000 firms involved in the "media" industry in Hamburg). As a result, many Germans liken Hamburg to New York City's "Silicon Alley."

For various commercial and political reasons, most **telecommunications firms** have clustered in **western Germany, around the Rhine and Main rivers**. In recent years, no other business sector has completed a development as dynamic as that of the telecommunications sector in this part of Germany. The critical factor to state governments in the region, in addition to increasing employment, is the positive effect of telecommunications and information technology sectors on the competitiveness of the other sectors and thus on the development of their overall economies.

The Rhine-Main area in particular has recently become one of the most important centers for telecommunications in continental Europe. Of the 200 licensed and unlicensed telecommunications services providers in the **state of Hesse** (which includes Frankfurt), more than 40 are among the industry's global "players." **Frankfurt**'s reputation as Germany's financial and business capital (similar to NYC) has attracted many of these telecommunications operators, which seek to serve the corporate communications market, particularly Frankfurt's many financial and multinational firms.

Telecommunications operators also have been drawn to the nearby German **state of North Rhine Westphalia (NRW)**, the government

of which has provided generous incentives to attract high tech industries such as telecommunications and media firms for the past decade. Many telecommunications operators have located in NRW's cities of **Cologne and neighboring Duesseldorf** (newcomer Vodafone is headquartered in the latter) to serve those cities' many television and media firms.

DTAG is the only telecommunications company headquartered in NRW's city of **Bonn**. DTAG's presence in this part of NRW stems from historical reasons. Prior to the creation of Germany's telecommunications regulator, RegTP, and the German government's partial divestiture of DTAG in 1996, DTAG was part of the German government's Ministry of Post and Telecommunications, which was then located in Bonn. Since 1998, RegTP has also been located in Bonn, and DTAG has remained there as well, despite the fact that the rest of the German government has since moved to Berlin.

Since reunification in 1991, and particularly since the German government returned to Berlin in 2001 after more than five decades in Bonn, big firms from all industries throughout Germany have opened or expanded their offices in Berlin (including IT firms— IBM, Microsoft, and Oracle all have offices in or near the city). However, these Berlin offices have tended to be strictly for government relations and lobbying; decision-makers for the most part have remained in other parts of Germany.

German industry observers state that there may never develop a quick movement of large, established firms to Berlin. They cite strict laws which make it very difficult for a firm to move its head office, as well as the general German preference for stability and predictability; Berlin is a city in the middle of change. Rather, such a movement may happen very slowly over time.

3. Some key points about German business culture

The German business culture has certain characteristics about which U.S. firms eager to do business in Germany should be aware. When talking business, German firms tend to be very numbers- and price-oriented. Past work references are extremely important. There is a long, intense sales cycle in Germany due to a certain risk-aversion, and it is necessary to take the time to earn the confidence of potential end-users or partners/representatives. As a result, being successful in Germany requires a long-term relationship that most often requires a German sales force and support. German end-users, as well as partners, seek assurances that a U.S. firm with which they do business will be around for the duration. Finally, it is very important for a U.S. firm new to the German market to get off to a good start, as German industry representatives state that German firms do not usually give vendors a second chance.

4. Germany can be a gateway to markets in eastern Europe, Austria, and Switzerland

Many people in eastern Germany know Slavic languages, and as a result many market specialists consider Germany an excellent entryway into the markets of central Europe, namely the “European tigers” of Poland, Hungary, and the Czech Republic. For

language reasons, Germany also can be used as a launching pad to serve the markets of Austria and German-speaking Switzerland.

Unique aspects of France

1. France's business center is in Paris

In contrast to Germany, France has one business center: Paris. In fact, nearly all French companies have their headquarters in Paris, and 60 to 65 percent of all business activity in France is in the Paris region. Lyon and Marseilles account for approximately another 10 percent each. Nonetheless, French representatives note that active companies are found everywhere in France, and that because of a Paris-centered hub-and-spoke transportation system, it is very easy to get to the capital from anywhere in the country.

2. France's IT and telecommunications firms tend to be located in Paris, with some exceptions

The vast majority of France's IT and telecommunications firms are clustered in and around Paris. However, another key IT cluster is the area of Sophia-Antipolis, located in the south of the country near Cannes. Envisioned by local government planners to be the "Silicon Valley" of France, Sophia-Antipolis, with its high-tech research park (Technopole), several universities, and critical mass of large IT companies, has attracted a few hundred French and foreign high-tech firms, mostly in the computer and software areas. IBM has its research center here and Microsoft and Cisco have offices as well. In addition, Brittany, on France's northwest coast, is home to some telecommunications firms because the French government sponsors most of its telecommunications R&D at the National Center for Telecommunications Studies (CNET) located there.

3. Some key points about French business culture

France's business culture is considered to be very different from that of Germany. French firms are not as risk-averse regarding IT purchases as firms in Germany, although the French are more conservative than their British counterparts in this regard. Unlike the German emphasis on numbers, the French reportedly are more concerned about getting to know the individuals in a U.S. firm and with establishing a one-on-one relationship that will last for a long time. The French business culture is similar to that of Latin America in this respect. Unlike the Anglo-Saxon and Germanic roots of the United Kingdom and Germany, respectively, France's roots are Latin, like those of Italy, Spain, and Portugal. In fact, despite its central location on the European continent, due to the cultural affinities among Latin countries, many French perceive themselves as part of southern Europe.[377]

4. France can be a gateway to markets in southern Europe, Switzerland, Belgium, North Africa, and even western Germany

Because of its Latin ties, many industry representatives interviewed in Europe believe that France is an excellent country from where a U.S. firm can serve the southern European markets of Italy, Spain, and Portugal. The French reportedly are very at

[377]French industry representatives, interviews by USDOC staff, Paris, Nov. 14-16, 2001.

ease doing business with people in these countries due to similar ways of doing business, negotiating, and reaching compromises in Latin countries; at the same time, French representatives have a good reputation there. In fact, many large foreign companies run their southern European operations out of France. Europe-based U.S. Department of Commerce market specialists report that approximately half the people representing U.S. firms at a recent IT trade fair in Italy (SMAU) were not Americans, but their French representatives.

For language reasons, France can be used as a launching pad to serve the markets of French-speaking Switzerland, Belgium, and northern Africa.

Market specialists point out that in some cases, U.S. firms can serve the German market by using French representatives or agents. Many French who live near the German border in Alsace-Lorraine work in Germany and thus are very conversant with German business and culture.[378]

5. Another point about France's location

Due to France's central location, the country is considered to be an excellent base for European business operations. For example, Paris is three hours from London and two hours from Brussels via the TGV high-speed train. Many U.S. multinationals, including IBM, Microsoft, and Apple have located their European headquarters in France.

[378]In contrast, not as many Germans living on the border tend to work in France due to the countries' wage differentials (salaries tend to be higher in Germany).

STRATEGY 2: UNDERSTAND EU (AND NATIONAL) REGULATIONS AND POLICIES

Although individual western European governments make many of their own policies, many of the regulations and policies related to telecommunications, the Internet, and e-commerce in western Europe are determined and legislated at the EU level, as explained in Chapter 2.

Therefore, an understanding of the compliance requirements as well as opportunities presented by developments in EU policy and regulation is essential for U.S. firms to formulate successful business strategies aimed at entering and expanding in Germany, France, or any other EU market.

In some cases, the **need to comply with European regulations can make navigating the market somewhat complex**. For example, until the new EU telecommunications regulatory framework takes effect in mid-2003, licenses are required to offer various types of telecommunications services in western Europe that might not require licenses in the United States. In another example, some form of representation in Europe that can assume legal responsibility for compliance with regulatory requirements is necessary to sell products subject to regulatory approval there, including telecommunications equipment such as modems. Finally, firms wishing to sell digital signature technologies in EU Member States must make sure their products comply with the requirements of the EU Electronic Signatures Directive.

Understanding regulations and policy developments at the EU level also can provide **valuable insight into market trends and opportunities that result from them**. In many cases, market opportunities will arise as European companies or other organizations work to comply with EU requirements, such as the Data Protection Directive or the EU's push to have European governments offer more of their services online by 2005.

In another example, the stable legal framework created by the Electronic Signatures Directive is expected to encourage the use of digital signatures, opening up promising market opportunities for those companies which provide related technologies and services. Nonetheless, it may be difficult to persuade potential customers to accept a product that complies with another international standard that is not European.

Despite the EU's goal of complete harmonization of Member State laws with EU directives and regulations, in reality this is not always the case. As a result, European industry representatives stress that it is **important for U.S. firms to get legal advice on regulations at both the EU and national levels**. For example, lawyers in Germany report that although Germany's data protection laws are reportedly harmonized with those of the EU (Germany has implemented the EU's Data Protection Directive), Germany still has a slightly stricter approach than the EU towards data protection. Further, the German government has a number of different (state-level) data protection offices with which U.S. firms may need to work. France has not yet implemented the Data Protection Directive (despite the 1998 implementation deadline), and will rely on its own laws on data protection (dating from 1978) until its Parliament approves a law to implement the EU Directive.

STRATEGY 3: LOCALIZE

A key strategy for success is localizing products and services, as well as market entry strategies, for the target markets.

1. Governments require that some IT and telecommunications products be certified to be sold in the region.

IT and telecommunications hardware intended to be connected with telecommunications networks (both wireline and radio equipment) must meet the following directives to be sold in EU markets.

< Low Voltage Directive
< Electromagnetic Compatibility Directive
< Radio and Telecommunications Terminal Equipment Directive

CE mark. To prove compliance with these directives, products must be affixed with a Conformite European (CE) mark. This mark is a European proof of conformity with the essential health, safety, and environmental requirements of the harmonized EU product safety directives. The CE Mark indicates that a manufacturer has satisfied all the assessment procedures specified by law for its products. The CE Mark is not a quality mark and only signifies to surveillance authorities that the product is in compliance with EU legislation. The accompanying declaration of conformity provides the details of the directive(s) with which the product complies

and the standards relied upon in assuring compliance.

2. Localize products and services for language.

Although many people in western Europe understand English, many more do not, and most people who do understand English still prefer to purchase items presented in their own language.

There are 12 official languages in the EU. Further, some languages, such as German, differ from region to region, including between northern and southern Germany and Austria. Swiss German is its own distinct dialect. The same does not apply to French, which is fairly uniform across France, the rest of Europe (Belgium, Switzerland), Africa (North and West), and the Carribean.

In certain cases, localization is necessary even for those markets in which English is spoken, such as the United Kingdom and Ireland, because some words in American English are spelled differently and will be viewed as typographical errors.[379]

Language localization should be undertaken by a local partner or localization firm, not in the United States, to ensure cultural nuances are incorporated into the localization process. Brand and product localization are not only key to easing customer acceptance, but are critical to show that a U.S. firm is making a long-term commitment to the European market.

3. Localize your website.

Having a local-language website is an excellent way to advertise, establish a brand in Europe, or to attract customers to the U.S. firm. This website's content and structure (including "look and feel") should be localized to the target market/country. Hiring people to localize the website who have a native understanding of the target country's culture is the best strategy. However, for web sites, particularly those used for e-commerce, language issues can have many hidden costs. Native-language staff need to maintain the sites, answer customers' questions, and fulfill orders generated electronically, if this is desired.

[379] IT market specialists in the United Kingdom report that because of the prevalence there of so many things American, language localization is not as important as it once was. However, they do note that American English often is found "amusing" in the U.K. market.

A caveat about translating software

German and French market specialists state that U.S. firms bringing their software products to these countries for the first time in an attempt to gauge market receptivity do not need to spend the time and money to localize the software for this initial step. However, for software to succeed in these markets in the long term, it must eventually be localized for language. A U.S. software producer may wish to seek a local partner who can perform this task.

Language localization is not as imperative for software programs that perform back-office and technical functions. Industry observers state that users of niche software products are often eager to obtain new software programs quickly and prefer not to wait for translations.

4. Make sure your solutions are localized appropriately for your target markets.

U.S. firms should confirm that their technologies are compatible with local technologies, markets, and habits. Some technologies simply may not be used in Germany, France, or other countries in western Europe, or may need to be modified for local habits or regulations.

For instance, because of Germany's strict data protection laws, CRM software is not used there in exactly the same way as in the United States. In addition, western Europe's heavy usage of smart cards, as opposed to credit cards, means that credit card-centric online payment technologies do not generate nearly as much demand there as in the United States.

5. Localize your market entry strategy.

Market entry and expansion strategies must be adapted to the local markets and may differ depending on which country is targeted. Local industry observers state that many U.S. firms which simply try to replicate successful business models used in the United States often fail, because they do not take into account the differences and intricacies of foreign markets.

As detailed below, a local partner or representative can help a U.S. firm determine the correct market entry strategy and business model for the best chance of success.

STRATEGY 4: HAVE A LOCAL PRESENCE

Industry experts interviewed in both Germany and France stress that for smaller U.S. firms to serve their markets successfully, some form of local presence is essential. They state that it is extremely difficult for U.S. firms to serve their markets from the United States or third countries for a variety of reasons, and they caution against attempting this strategy.

A U.S. firm can develop a local presence either by setting up its own operations in the target market or by finding a local firm that can represent it there. Using local lawyers or consultants from the country is essential as well.

A local presence has many benefits for U.S. SMEs.

< It gives small U.S. firms more credibility, helps them overcome a lack of brand recognition, and shows commitment to the market. Industry observers report a wariness among end-users in Europe of foreign firms that want to sell a product or service without a local presence.

< Doing business in western Europe requires long-term relationships. Establishing these takes time and can be done much more easily via a local presence. A local partner can be beneficial in this case, since a local firm might either already have the necessary relationships in place or, if not, is better situated in terms of language, culture, and logistics to develop new ones.

< Industry representatives in western Europe state that communicating constantly with clients in their region is critical. Having a local presence makes this possible, especially if after-sales service is to be available 24/7. Local representation should include a local sales force as well as local support to provide reliable pre-sales and after-sales service, training, and timely delivery, all of which have become crucial as budgets tighten and the market becomes more challenging.

< Having a local presence makes potential customers more comfortable knowing that they will not need to call the United States (many time zones away) if they have questions, problems, or need technical or customer support.

< Local customers tend to trust a local firm better because it is subject to local legal liabilities.

< Having a local presence brings the U.S. firm critical first-hand knowledge about and understanding of the local market structure, sales cycles, economic trends, regulatory issues, and cultural factors and tastes.

< A local presence is particularly important in Germany and France for reasons specific to these countries.

Germany. End-users in Germany, who are conservative about their telecommunications and IT purchases, tend to be very concerned about their suppliers being around for the long term and reportedly are much more comfortable seeing that the U.S. firm has made a commitment to the German market via establishing a local presence.

France. In France and other (Latin-based) southern European countries, business is very relationship-oriented, and "face-to-face" interactions are much more important than in Anglo-Saxon cultures such as the United States or the United Kingdom. Experts interviewed in Paris stressed that this local presence can be via a local partner, but they repeatedly emphasized that U.S. firms should not try to serve the French market from the United States. A local partner will give a U.S. firm a local "face" and will use personal ties to locate and approach new customers more effectively and to develop and strengthen long-term personal relationships.

< In certain cases, a local presence is required. German and French telecommunications operators frequently require that their suppliers have an office somewhere in the EU, if not in Germany or France. One reason for this requirement, besides after-sales support, is their desire to

assure that every supplier is legally liable for any failure of its product to satisfy regulatory requirements in their countries.

Which form of local presence?

An excellent option is to set up a local office and hire local employees to do marketing, training, and provide on-going support for the company's products. However, for small U.S. firms just entering a foreign market, and with limited resources and manpower, there are lower cost options with which to begin. Each of these are detailed in the sections below.

> ***Hint:***
>
> Local industry experts stress that prior to choosing a local presence strategy, such as partner or representative, it is important for the U.S. firm to visit the target market and try to understand first-hand the local market and business and user cultures. Trade fairs (described later in this chapter) offer an excellent opportunity for such visits.

1. Partnering with a large, established IT or telecommunications firm, systems integrator, or consultant already active in the region.

Working with established, larger IT and telecommunications firms, systems integrators, or consultants already doing business in western Europe can help a U.S. firm with its initial expansion into the region.

< Small companies in the international marketplace often lack the brand recognition and delivery channels enjoyed by larger firms. Larger firms help build name recognition by integrating the U.S. SME's technologies into their product or service suites, allowing the SME to reach customers it might not otherwise know about.

< In the context of the economic slowdown in Europe, references have become much more important to end-users, particularly in Germany. Large firms which integrate an SME's technology into a turnkey solution and can provide related services essentially serve as the SME's reference.

European industry representatives report that many IT and telecommunications firms, SIs, and consultants working in the region (including European, U.S., and other firms) are constantly on the lookout for new leading-edge technologies from small U.S. firms. This is particularly true among French SIs.

> **France's systems integrators**
>
> U.S. IT companies can capitalize on France's extensive network of software services (including systems integration) firms to implement solutions among a vast array of corporations, from the smallest to the largest ones.

Subcontracting to large, established firms in the telecommunications sector

Industry specialists state that U.S. SMEs can penetrate western Europe's telecommunications markets most effectively as subcontractors or in partnerships with the larger equipment vendors or SIs already active in the region. For example, small U.S. telecommunications equipment providers could subcontract to major multinational infrastructure vendors such as Cisco, Ericsson, Lucent Technologies, Motorola, Nokia, and Nortel Networks, all of which are very active in western Europe. SMEs whose telecommunications equipment competes directly with larger equipment vendors' products will have more difficulty establishing a foothold, but SMEs with niche products that are successful in the United States or elsewhere should be able to sell their products in western Europe's markets as well.

2. Partnering with a like-minded western European IT or telecommunications SME with complementary skills and solutions.

Industry experts in western Europe recommend that U.S. SMEs form strategic alliances or partnerships with small, well-established local technology firms that have complementary products or services. Both Germany and France have a large and growing number of such small, competitive firms, providing numerous partnering opportunities. At the same time, many German and French technology SMEs are interested in finding U.S. partners.

Small German and French firms seek partnerships with U.S. technology SMEs for various reasons. These include:

< Access to leading-edge Internet and e-commerce technologies. Many technologies associated with the Internet were invented in the United States, and thus U.S. firms are viewed in western Europe as being at the forefront of Internet technology developments. Small software firms in Europe are eager to partner with U.S. Internet and e-commerce technology developers to gain the latter's technological expertise.

< Small local IT firms are eager to learn from their U.S. counterparts the latest trends and technologies in the more mature U.S. Internet and e-commerce markets.

< In France, firms seek marketing skills. Industry representatives in France believe that U.S. SMEs can bring their marketing prowess to France. Representatives state that generally speaking, the French are not very good at marketing and that French engineers are better in their research laboratories than in the marketplace. Further, they report that French managers feel guilty talking about money. In contrast, U.S. firms are perceived in France as being very skilled and aggressive at marketing. Some French industry representatives suggest that a possible partnership might involve a U.S. firm running the marketing department, which would be staffed by locals who could adjust the message in terms of language, culture, and other country-specific details.

< Some German and French SMEs are eager to serve the U.S. market and view partnerships with U.S. firms as a means of achieving that goal.

3. Contracting with agents, distributors, or other representatives who can represent the U.S. firm and support its customers.

Like other partners, agents and distributors can assist the U.S. firm with their knowledge of the intricacies of the target market, such as regulations, taxes, and end-user demands.

Agents and distributors differ slightly:

Agents. Agents generally take orders for and sell a product or service, but do not take possession of a product and are not directly responsible for payment. In most countries, an agent has more than one client and therefore may sell products or services that compete with those of the U.S. supplier. A distributor typically pays for a product or service that it resells.

< Local market experts state that small U.S. firms providing products for telecommunications end-users and services such as Internet or e-commerce consulting, and who do not choose to partner with a similar small IT firm, will need an agent to sell their services locally.

Distributors. Distributors sometimes combine their own products with that of the U.S. exporter, which makes the distributor more committed to selling the exporter's product. Traditional distributors simply sell products to resellers, with no further services. Value-added distributors perform additional services, such as training, maintenance, and technical support.

< Local market experts state that using local software distributors, who sell to systems integrators or directly to end customers, is a good avenue for U.S. software firms.

Agents and distributors are not recommended in some instances.

< For U.S. SMEs in the IT and telecommunications industries with highly sophisticated technologies, after-sales service, which often includes working closely with the customer on technology issues, is critical. This is a function likely best handled by the U.S. firm or an IT or telecommunications partner.

< Agents and distributors may not work very well in selling sophisticated services such as Internet or e-commerce consulting because of their lack of knowledge about these service offerings.

< The provision of telecommunications or Internet services may require a foreign firm to build its own network or lease facilities, in which case agents or distributors have no role. A local partner would be the best route for an SME in this case.

Finding agents and distributors

< Lists of agents and distributors are sometimes included in Industry Sector Analysis reports published regularly by U.S. Department of Commerce market specialists located in Germany and France.[380] However, market specialists state that lists change often because the industry changes quickly.

[380]Industry Sector Analysis reports are described in Chapter 6.

< Agents or distributors can be found in specialized magazines in the target country, similar to industry journals in the United States.

< Agents or distributors can be found by participating in trade fairs, such as the largest international IT fair, Germany's CeBIT, described below.

< The U.S. Department of Commerce provides an International Partner Search service that will locate and qualify potential candidates in target markets.[381]

Things to keep in mind about agents and distributors:

< Agents and distributors should be qualified to ensure that they 1) understand the U.S. firm's objectives, products, and services, 2) can provide after-sales service, if necessary, and 3) cover the geographic area required.

< Because it can be expensive to terminate an agreement with an agent or distributor in Europe, it is wise to choose the representative carefully. Having a contract is advised.

< Further advice on choosing in-country representation can be found in the Country Commercial Guides prepared annually by the U.S. Department of Commerce.[382]

Be cautious about using "pan-European" agents and distributors.

It is best to find a separate local agent or distributor based in each country in which the U.S. firm wants to do business. European market experts report that some U.S. firms try to take the "easy route" by signing with one agent or distributor who claims to cover all of western Europe. However, such representatives face the same challenges any firms face in terms of needing to understand intimately the differences and nuances between, and have solid business contacts in, each European market. U.S. SMEs are advised to verify that a potential distributor has a strong distribution network already set up to serve the targeted European country (or countries).

IMPORTANT ISSUES TO CONSIDER WHEN SEEKING A PARTNER

Be patient. It may take longer to conduct business transactions in Germany and France than in the United States. **Germans** tend to take more time than Americans when making major decisions such as purchasing technologies or choosing partners. Local experts state that this is particularly true now given the downturn in the German market.

Due to the Latin-based relationship-oriented culture in **France**, spending time to let a potential French partner get to know the U.S. individuals involved is very important.

[381]The International Partner Search Service is described in Chapter 6.

[382]Country Commercial Guides are described in Chapter 6.

Be persistent. Because Germany and France have such large and lucrative IT and telecommunications markets, these markets have become highly competitive. Local firms of all sizes are receiving an increasing number of offers from an array of sources, including the United States, other European countries, and elsewhere to purchase technologies, resell technologies, and form various partnerships.

Market specialists in both countries interviewed in November 2001 reported that competition has progressed to the point that local firms now are "cherry picking" among a multitude of such offers. As a result, having a face-to-face meeting with a potential customer or partner can make the difference in a U.S. firm's ability to get its foot in the door. Persistence in arranging this first meeting is key.

Be thorough. U.S. firms are advised against rushing into a partnership with the first local firm it finds. A U.S. firm should identify a number of potential partners and then choose from among them.

Steps to follow in forming partnerships

Depending on the culture and organizational goals of each company, an alliance can be very formal, with well-established responsibilities, or less formal, depending on each company's corporate culture and goals.

Keep in mind the following steps in forming a strategic alliance.

< Identify a key individual in each company, preferably a principle owner or senior manager, who can focus on the alliance.

< Conduct due diligence. Check the background of the potential partner, including the quality of products and technology, business structure, and financial soundness. The U.S. Department of Commerce's offices overseas provide services to help U.S. companies find such information.

< Set clear objectives. Since companies will have different objectives in forming an alliance, both parties should agree at the beginning on a common set of strategic objectives to gain from the alliance, as well as an exit strategy.

< Use legal and contractual mechanisms to protect your intellectual property rights and business interests.

LOCATING THE APPROPRIATE PARTNER OR REPRESENTATIVE

Careful research to find the best type of local representation in foreign markets is necessary. A variety of organizations exist that are eager to help U.S. IT SMEs find partners or

Common mistakes in partnering.

German and French industry representatives report three main mistakes U.S. firms commonly make with their local partners.

< Failing to nurture the relationship with the local partner (regular communication is important).

< Not providing adequate information flows back to the local partner (information flow is key).

< Being arrogant vis-à-vis the local partner (don't assume U.S. superiority).

representatives in Germany, France, and western Europe generally.[383]

The U.S. Department of Commerce.

< U.S. Department of Commerce IT and telecommunications market specialists based in Germany and France specialize in working with their numerous industry contacts to find local firms interested in meeting potential U.S. partners.

< U.S. Department of Commerce matchmaking services, such as the International Partner Search and the Gold Key Service, are summarized in Chapter 6.

Local trade associations, chambers of commerce, and governments.

< Germany and France have a number of IT- and telecommunications-related trade associations that aim to encourage profitable business practices of their member firms, many of which are SMEs.

< Membership in chambers of commerce in many countries in western Europe is required by law. These organizations also work to help their member firms succeed, frequently playing a more formalized role in this regard than their counterparts in the United Sates.

< Offices of local governments in Germany and France work closely with IT and telecommunications firms. These organizations often take steps to assist in forming partnerships between foreign companies and local firms or to attract foreign companies to invest locally.

Trade associations, chambers of commerce, and local government offices interviewed in Germany and France are eager to help their local IT and telecommunications SMEs partner with interested U.S. firms, and these organizations have various matchmaking capabilities. They might alert their local companies about potential U.S. partners and help set up meetings between firms– for example, when a U.S. firm plans to come to the target country, when a local firm plans to travel to the United States, or when firms could meet in tandem with a major trade fair.

Organizations that have expressed an interest in facilitating communications and matchmaking between their local software, telecommunications, and Internet technology companies and U.S. SMEs include:

< Deutscher Multimedia Verband (DMMV– German Multimedia Association), Berlin, Germany
< "eco" Verband, Cologne, Germany
< Hamburg New Media Network, Hamburg, Germany
< German Association of Telecommunications and Value-Added Service Providers (VATM), Cologne, Germany
< Syntec Informatique, Paris, France

Contact information for some of these German and French organizations is in the Appendix. Other local trade associations that may be helpful would be listed in the Industry Sector Analysis market research reports written by U.S. Department of Commerce

[383] In addition to the resources listed below, many U.S. state and local governments specialize in helping their firms do international business. Many private-sector consulting firms sell such services as well.

staff based in the target markets (these reports are described in Chapter 6). These types of trade associations and state-level organizations also exist in the United States and provide similar services for U.S. companies.

Trade fairs.

Trade fairs are another avenue for finding partners or representatives, although unless meetings are pre-arranged this is a less targeted approach.

< Because Europeans use trade fairs to do business, not merely to advertise their products, trade fairs are an excellent way for U.S. SMEs to learn about local markets, introduce their technologies to them, and find partners. Trade fairs are particularly strong in Germany, which has a long history of trade fairs dating from World War II, and where firms are usually international in scope and attract a large attendance.

< The largest and most important IT- and telecommunications-related trade fair worldwide held annually is CeBIT, in Hannover, Germany, each March. A smaller fair, COMDEX France, is held in Paris, also each March. In addition, more focused trade fairs also exist that may be more appropriate for smaller firms. For example, the European Banking Technology Fair, held annually in Germany in October, focuses on technologies used by financial institutions.

< Trade fairs focused on specific vertical industries can be excellent avenues for SMEs with niche or vertical industry-specific products or services.

Key IT- and telecommunications-related trade events in Germany and France are listed in the Appendix.

Low-cost participation in trade fairs.

U.S. Department of Commerce personnel participate in many trade fairs with, or on behalf of, U.S. firms, offering them market promotion and additional services, such as trade lead generation. These trade promotion events facilitate participation at prices far below regular trade fair participation costs or offer additional services not elsewhere available.

For a list of IT, telecommunications, and related trade fairs in western Europe and elsewhere supported by the U.S. Department of Commerce, see http://www.usatrade.gov. The U.S. Department of Commerce's Office of Information Technologies' web site (http://exportIT.ita.doc.gov) lists IT-related trade fairs, and the Office of Telecommunications Technologies' web site (http://telecom.ita.doc.gov) lists telecommunications-related trade fairs.

SERVING GERMANY OR FRANCE FROM THE UNITED KINGDOM?

German and French industry participants strongly advise against trying to serve their markets via U.K. staff, noting that U.S. firms which try to do so usually fail.[384] Although

[384]Of course, if a U.S. firm plans to serve the U.K. market, then finding U.K. partners or distributors is recommended. In addition, local market experts add that the United Kingdom is an excellent place from where to serve the Irish market.

many foreign firms base their pan-European operations in the United Kingdom, having local representation in all countries targeted is strongly encouraged.

< Despite the geographic proximity, industry representatives emphasize that the United Kingdom is quite different from countries on the continent in terms of business style and culture. U.K. technology end-users are considered to be among the "least risk-averse" in western Europe, more similar to U.S. end-users than their European counterparts. Continental Europeans, particularly Germans, tend not to be risk-takers. Relying on U.K. partners, agents, or distributors to target the German or French markets can result in the same business culture disconnects as serving these markets from the United States.

< Legal structures (including contracts), taxes, and all other business regulations unique to doing business in the United Kingdom do not apply in other European markets.

< Cultural biases reportedly can handicap a U.K.-based strategy. Many mainland Europeans, including the Germans and French, view the United Kingdom as an "island" very different from continental Europe (and many British view the continent as quite different from them as well). French industry representatives with extensive experience helping U.S. IT firms do business in France state that many French do not believe the British (or the Germans) know how to operate in the French market.

INTERNET SALES: AN OPTION?

The Internet is significantly changing distribution channels and customer relationships in western Europe, as it is doing in the United States. Although Internet-based sales are one way to serve the European market, Internet sales to western Europe from the United States can be challenging for both seller and customer. Some considerations must be kept in mind.

Fulfilling orders placed via the Internet.

< European countries have their own distribution laws. U.S. producers who ship orders from the United States or third countries must take care not to violate applicable laws.

< Even if a U.S. firm can fulfill an order taken over the Internet, it may need to modify the product before sending it to the customer to assure that the product satisfies local requirements, such as compatibility with local electrical power standards, which require 220 volts throughout the region. Any products sold in any EU country for connection to a telecommunications network must meet relevant technical standards and so indicate with the CE mark.

< IT and telecommunications products often require support and service which U.S. firms relying solely on Internet sales may be unable to offer.

< European customers will need to pay taxes (primarily value-added taxes or VATs) and

import duties[385] on any imported items, which a web site should make clear prior to purchase.

< Industry observers report that, in some cases, customers must travel to international airports to clear their purchases through customs, which is time-consuming.

Using the Internet to digitally deliver products to western Europe.

U.S. SMEs often cut costs by using electronic software distribution (ESD). However, ESD into western Europe could prove problematic.

< The somewhat high costs associated with Internet use in western Europe, particularly metered local phone calls which affect dial-up Internet use, means that ESD can be prohibitively costly for some potential customers such as home users or small firms.

< Broadband penetration in western Europe is still relatively low, including among SMEs. The availability of broadband varies widely by country.

< The European Commission's forthcoming directive will institute a VAT on digitally delivered goods sold to EU consumers from non-EU suppliers. This regulatory regime will apply across the EU as of July 1, 2003. This VAT could impose a significant tax burden on U.S. software producers or producers of other digital content who sell to consumers. Under this directive, the U.S. firm will be responsible for determining each customer's country of residence, charging and collecting the applicable VAT, and remitting it to EU authorities. (EU-based businesses that purchase digitally delivered goods from U.S. (or any other foreign) firms have been and will remain responsible for paying the applicable VAT to their local authorities under EU law.)

[385]Unlike VATs, the EU's import duties on most IT and telecommunications products are zero, as noted in Chapter 1.

SUGGESTED MARKET ENTRY AND DEVELOPMENT STEPS

< Visit the region to explore local markets--on your own, via a trade fair, or on a trade mission organized by the U.S. Department of Commerce or other organization.

< Begin by using a distributor for your product (one with enough geographic reach to cover at least the target market's main economic areas) or a partner to help promote your telecommunications or Internet services.

< If sales go well, hire a local employee or partner such as a local technology firm, SI, or another firm well-versed in technology and the local technology markets.

< Bring the local employee(s) to the United States for training and to teach them your corporate culture. This may be necessary on a fairly regular basis.

< If sales continue to go well, open a small local office to establish a local address.

< If business expands into other countries, try to hire a local representative in each country, with one director for Europe conducting oversight.

< Feel free to contact the U.S. Department of Commerce office in the country/region if your firm encounters any problems doing business in international markets.

CHAPTER 6: THE ROLE OF THE U.S. DEPARTMENT OF COMMERCE

INTERNATIONAL TRADE ADMINISTRATION

The mission of the U.S. Department of Commerce's International Trade Administration (ITA) is "to create economic opportunity for U.S. workers and firms by promoting international trade, opening foreign markets, ensuring compliance with trade laws and agreements, and supporting U.S. commercial interests at home and abroad."[386] The Trade Development (TD) and the U.S. Commercial Service (US&FCS) divisions of ITA are responsible for export promotion. For more information on ITA, see http://www.trade.gov.[387] For more information on how the U.S. government assists U.S. businesses export, see http://www.export.gov.[388]

Export.gov web site

Export.gov is a multi-agency trade portal that brings together U.S. Government export-related information under one easy-to-use web site, organized according to the intended needs of exporters, especially small businesses. Whether a company is exploring the possibility of exporting, searching for trade partners, seeking information on new markets, or dealing with trade problems, this web site can help. Additionally, the site has easy links to information on advocacy, trade events, trade statistics, tariffs and taxes, market research, export documentation, financing export transactions, and much more.

TRADE DEVELOPMENT[389]

ITA's Trade Development (TD) unit is the Commerce Department's link to U.S. industry. TD provides industry and market analysis, export promotion services, advocacy for U.S. companies bidding on foreign government contracts, and support for trade negotiations. TD offers an array of services to help small businesses increase their export potential.

Industry Expertise

TD's industry expertise encompasses the majority of U.S. business sectors.[390] Industry sector specialists provide U.S. firms with: information and analysis of domestic and foreign industry trends; foreign market conditions and opportunities for specific

[386]Taken from "ITA Strategic Plan, Fiscal Years 2002-2006," available at http://www.trade.gov/ooms/ITAMeasures/ITAStrategicPlan.pdf.

[387] To access updated ITA Work Reference Charts, visit http://www.ita.doc.gov/ita_home/itawrc.htm

[388] Export.gov is designed to assist U.S. businesses find all U.S. Federal Government export-related information in one, user-friendly Web site. By providing all country, industry, and program information at a central location, Export.gov enables users to answer their questions quickly without having to understand the organizational structure of the U.S. Government.

[389]More about TD, including information on its services and industry analysts' contact information, is available at http://www.trade.gov/td.

[390] The agricultural sector falls within the purview of the U.S. Department of Agriculture

products or services; information on foreign market tariffs and non-tariff barriers and regulations; advocacy assistance; business and cultural practices; and advice on business and cultural practices.

Trade Negotiations and Agreements

TD's industry expertise is the primary source used in trade negotiations by the President of the United States and the Office of the U.S. Trade Representative (USTR). TD's close interaction with industry, understanding of restrictions on market access, product standards and testing requirements, and knowledge of trade data assist negotiators in the drafting of trade agreements with maximum benefits for U.S. firms. Additionally, TD industry experts help monitor and enforce foreign governments' compliance with trade commitments through collaboration with other ITA units, including the US&FCS and Market Access and Compliance (MAC) regional desk officers, as well as the USTR.

TD's INFORMATION TECHNOLOGY INDUSTRIES

TD's Deputy Assistant Secretary for Information Technology Industries oversees the activities of the four (4) high-tech industry-focused offices: Office of Information Technologies (OIT); Office of Telecommunications Technologies (OTT); Office of Electronic Commerce (OEC); and the Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI).

Office of Information Technologies

OIT focuses on the following IT industry segments: computers and peripherals; software; networking equipment; Internet technologies; and e-commerce technologies.

OIT actively supports U.S. IT firms' efforts to expand their business overseas. OIT industry specialists track the growth and competitiveness of domestic and foreign IT industries; counsel U.S. businesses on overseas market conditions and the practical aspects of exporting their products; identify market barriers as they affect IT exports; and work closely with USTR to negotiate the removal of such barriers.

OIT export promotion activities include trade missions, trade fairs, catalog shows, and technical seminars that introduce U.S. businesses to end-users and potential trading partners located overseas.

OIT staff compile and disseminate detailed information and analyses on the IT industry sectors they cover and contribute to the annual Department of Commerce *U.S. Industry & Trade Outlook* publication that describes current and future IT industry and market trends on a domestic and global basis. These specialists also work to update and expand the OIT Web site with information on foreign markets and regulations, including tariff and tax rates for IT products, U.S. and foreign policies that affect IT exports, upcoming trade events, and additional government and private sector resources. OIT distributes a free electronic newsletter highlighting trade leads, partnering opportunities, and trade events.

To obtain more information, including OIT international trade specialists and the regions/industry sectors they cover, contact:

Office of Information Technologies (OIT)
U.S. Department of Commerce, Room 2806
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-0571
FAX: (202) 482-0952
http://exportIT.ita.doc.gov

Office of Telecommunications Technologies

OTT's mission is to support the growth and competitiveness of the U.S. telecommunications equipment and services industries in foreign markets.

OTT provides business counseling to U.S. telecommunications firms seeking to enter or expand in specific markets by developing and disseminating information on the telecommunications market in foreign countries based upon information from US&FCS and a wide range of other industry resources. OTT promotes international trade and investment opportunities for the U.S. telecommunications industry by sponsoring events that offer direct contact with foreign government and industry officials. OTT, in conjunction with sister ITA units and government agencies, acts as an intermediary between U.S. firms and foreign governments to provide advocacy on behalf of U.S. companies bidding on public projects abroad. OTT supports the USTR in trade negotiations to open foreign markets for U.S. telecommunications equipment and services exports. Additionally, OTT monitors both bilateral and multilateral telecommunications agreements and provides input to the USTR regarding compliance by foreign countries.

OTT conducts market research and statistical analysis of the domestic and international telecommunications industry and posts a variety of industry information to its Web site. The office distributes complimentary electronic newsletters that deliver up-to-date information on foreign market opportunities and changes affecting the industry and OTT contributes the telecommunications chapters featured in the Department of Commerce *U.S. Industry & Trade Outlook* publication.

To obtain more information, including OTT international trade specialists and the regions/industry sectors they cover, contact:

Office of Telecommunications Technologies (OTT)
U.S. Department of Commerce, Room 4324
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-4466
FAX: (202) 482-5834
http://telecom.ita.doc.gov

Office of Electronic Commerce

OEC is responsible for expanding U.S. exports by bringing small business exporters into the global economy, as well as engaging U.S. trading partners in e-commerce issues. The focus is to connect U.S. businesses to the new digital economy.

OEC provides information, business counseling, and export assistance services to U.S. firms seeking to enter specific markets by developing and disseminating information on the electronic commerce market conditions

in foreign countries. OEC provides general trade and policy analysis and research, including analyzing foreign countries' e-commerce laws and initiatives. IT compared such requirements to U.S. policy requirements as well as other policy developments in relevant international fora.

OEC participates in fostering a favorable policy environment by focusing on keeping both the Internet and foreign markets open to private sector driven global growth. This is accomplished by participating in various fora, such as the U.S. Government's interagency working group on electronic commerce, the OECD, WTO, European Union, Asia Pacific Economic Cooperation forum (APEC) and Free Trade Agreement of the Americas (FTAA). This effort also includes overseeing the Administration's E-Commerce Joint Statements with other governments, managing the IFAC-4 E-Commerce advisory committee, as well as participating in formal as well as informal policy dialogues with other nations. OEC's task is to determine how to address the changes taking place and ensure that the policy infrastructure is in place to enable business, trade and investment to occur as efficiently as possible in the digital economy. OEC also provides various types of technical assistance, such as video conferences, to bring together government policy and industry experts on various e-commerce issues.

To obtain more information, including OEC international trade specialists and the regions/industry sectors they cover, contact:

Office of E-Commerce (OEC)
U.S. Department of Commerce, Room 2003
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-0216
FAX: (202) 501-2548

Office of Microelectronics, Medical Equipment, and Instrumentation

OMMI covers electronic components such as electron tubes, printed circuit boards, semiconductors, capacitors, resistors, transformers, and connectors, as well as semiconductor manufacturing equipment. Additionally, OMMI supports several industry sectors with high IT content, including medical and dental equipment and electro medical apparatus, process control instruments, laboratory analytical instruments, optical instruments, and instruments used to measure electricity and electrical signals.

OMMI's primary mission is to promote exports and increase the international competitiveness of U.S. industry working in these sectors. OMMI counsels U.S. firms on foreign market conditions and the specifics of exporting, using information from overseas US&FCS offices and a wide range of industry-related resources. OMMI staff work with private sector and Department of Commerce colleagues to develop trade missions, trade fairs, catalog shows, seminars, and other trade events that offer direct contact with foreign government officials, industry representatives, and end-users. In cooperation with other parts of ITA and U.S. government agencies, OMMI participates in trade negotiations and supports USTR efforts to eliminate or reduce regulatory and other types of barriers that hinder trade and investment in these industries.

OMMI staff gathers and disseminates market research and statistical analyses of the domestic and international microelectronics, medical equipment and instrumentation industries. Trade and industry reports, trade statistics, information on foreign markets and regulations, U.S. and foreign policies that affect exports, trade events, and links to additional government and private sector resources are available on the OMMI Web site. OMMI industry specialists profile current and future industry and market trends on a domestic and global basis in the Department of Commerce *U.S. Industry & Trade Outlook* publication.

To obtain more information, including OMMI international trade specialists and the regions/industry sectors they cover, contact:

Office of Microelectronics, Medical Equipment, and Instrumentation (OMMI)
U.S. Department of Commerce, Room 1015
14th Street & Constitution Avenue, N.W.
Washington, DC 20230
Tel: (202) 482-2470
FAX: (202) 482-0975
http://www.trade.gov/ommi

OTHER TRADE DEVELOPMENT OFFICES AND PROGRAMS

Trade Information Center

TD's Trade Information Center (TIC) is an excellent first stop for new-to-export companies seeking export assistance from the federal government. TIC Trade Specialists: 1) advise exporters on how to find and use government programs; 2) guide businesses through the export process; 3) provide country and regional business counseling, foreign import tariff/tax rates and customs procedures, trade opportunities and best prospects for U.S. companies, distribution channels, standards, and common commercial difficulties; 4) provide information on domestic and overseas trade events; and 5) provide sources of public and private sector export financing. TIC trade specialists also assist exporters in accessing reports and statistics from the computerized National Trade Data Bank and direct them to state and local trade organizations that provide export assistance. To contact the TIC, call 1-800-USA-TRADE; FAX (202) 482-4473; e-mail: TIC@ita.doc.gov; or visit the Web site http://tradeinfo.doc.gov.

Advocacy Center

The Advocacy Center (AC) aims to ensure that U.S. companies of all sizes are treated fairly and evaluated on the technical and commercial merits of their proposals for foreign government tenders. Advocacy assistance is wide and varied, but often involves U.S. companies that must deal with foreign governments or government-owned corporations. Assistance can include the visit of a high-ranking U.S. government official to a key foreign official; direct support by U.S. officials (including Commerce and State Department officers) stationed overseas at the U.S. Embassies and Consulates; or, coordinated action by U.S. government agencies to provide maximum assistance. The AC is at the core of the President's National Export Strategy and its goal to ensure opportunities for American companies. Since its creation in 1993, the AC has helped hundreds of U.S. companies in various industry sectors win foreign government contracts valued at more than

$2.5 billion. For more information, see http://www.trade.gov/advocacy.

Trade Missions And Events

Working in coordination with the private sector and the US&FCS, TD industry analysts help plan, organize, and execute trade events, including high-level executive missions with the Secretary or Under Secretary of Commerce. Additionally, there are a host of trade conferences and shows held throughout the U.S. and abroad. Industry-specific trade missions and events are listed on the individual TD offices' Web sites. A searchable list of all ITA trade events can be found at www.usatrade.gov.

Small Business Program

ITA's Small Business Program is the focal point for trade policy issues concerning SMEs. The program brings the small business point of view to international trade policy discussions, primarily through the Industry Sector Advisory Committees (ISAC) on Small and Minority Business for Trade Policy Matters (ISAC 14), the only advisory committee to the U.S. Government on small and minority business export concerns. The Small Business Program also provides outreach to and plans events for small, women-owned, and minority-owned firms. Additional information can be found at http://www.trade.gov/td/icp.

Industry Consultations Program

Industry has a voice in U.S. trade policy formulation through the Industry Consultations Program (ICP). The ICP includes more than 500 members and is comprised of seventeen (17) Industry Sector Advisory Committees (ISACs) on Trade Policy Matters and three (3) Industry Functional Committees on Trade Policy Matters (IFACs). The ISACs represent industry sectors of the U.S. economy, including IT and small and minority businesses. The IFACs address crosscutting issues affecting all industry sectors - customs, standards, intellectual property rights, and e-commerce. Advisors on these committees have direct access to trade policymakers at the Department of Commerce and the USTR and help develop their industry's positions on U.S. trade policy and negotiation objectives. Additional information can be found at http://www.trade.gov/td/icp.

Export Trading Companies and Trade Intermediaries

The Office of Export Trading Company Affairs (OETCA) promotes the formation and use of export trade intermediaries and the development of long-term joint export ventures by U.S. firms. OETCA administers two programs available to all U.S. exporters. The Export Trade Certificate of Review Program provides antitrust protection to U.S. firms for collaborative export activities. The MyExports.com™ program is designed to help U.S. producers find export partners and locate export companies, freight forwarders, and other service firms that can facilitate export business. For more information, see http://www.trade.gov/oetca and http://www.myexports.com.

Market Development Cooperator Program

MDCP is a competitive matching grants program that builds public-private

partnerships by providing federal assistance to nonprofit export multipliers such as states, trade associations, chambers of commerce, world trade centers, and small business development centers. These multipliers are particularly effective in reaching and assisting SMEs. Applicants use their own creativity to design projects that will help SMEs to enter, expand, or maintain market share in targeted overseas markets. MDCP awards help underwrite the start-up costs of exciting new export marketing ventures which these groups are often reluctant to undertake without federal government support. For more information, visit http://www.trade.gov/mdcp.

THE U.S. AND FOREIGN COMMERCIAL SERVICE (US&FCS)

The US&FCS, another unit in ITA, assists U.S. firms in realizing their export potential by providing: 1) exporting advice; 2) information on overseas markets; 3) assistance in identifying international trading partners; 4) support of trade events; and 5) advocacy, among other services. US&FCS trade specialists work in more than 100 Export Assistance Centers across the United States and in more than 150 overseas posts, in approximately 80 foreign countries, which combined represent more than 96 percent of the world market for exports. Lists of trade specialists by U.S. city or foreign country can be found at www.usatrade.gov.

International Operations

Overseas US&FCS offices are housed in U.S. Embassies and Consulates where Commercial Officers serve as intermediaries to foreign markets. US&FCS staff members are industry-focused and offer numerous products and services that assist U.S. companies enter or expand their sales in a particular market. The main activities of these offices include establishing key industry and foreign government contacts, helping match U.S. suppliers with local buyers, and organizing or facilitating trade events. Contact information for US&FCS trade specialists who cover the IT, telecommunications, and e-commerce sectors in Germany and France are listed in the Appendix of this report.

Domestic Operations

The US&FCS provides export counseling and marketing assistance to the U.S. business community through its 1,800 trade experts working in more than 100 domestic Export Assistance Centers (USEACs) located across the country. USEAC staff coordinate work closely with their US&FCS colleagues stationed overseas to match U.S. suppliers with foreign buyers. USEACs help firms enter new markets and increase market share by identifying the best markets for their products and services, and developing an effective market entry strategy informed by input generated in the overseas offices. They also advise clients on practical exporting matters such as distribution channels, programs and services, and relevant trade shows and missions, as well as assisting with trade finance programs available through federal, state, and local entities.

US&FCS Services

Market Research

Industry Sector Analysis (ISA)

ISAs are structured market research reports produced on location in leading overseas markets and cover market size and outlook, with competitive and end-user analysis for the selected industry sector. ISAs are available at http://www.usatrade.gov and are a component of the National Trade Data Bank (NTDB) subscription service detailed below.

International Marketing Insight (IMI)

IMIs are written by overseas and multilateral development bank staff and cover information on the dynamics of a particular industry sector in one foreign market. IMIs are available at http://www.usatrade.gov and are a component of the NTDB subscription service detailed below.

Country Commercial Guide (CCG)

CCGs are prepared annually by U.S. Embassy staff and contain information on the business and economic situation of foreign countries and the political climate as it affects U.S. business. Each CCG contains the same chapters, covering topics such as marketing U.S. products, foreign trade regulations and standards, investment climate, business travel, and in-country contact information. CCGs are available at http://www.usatrade.gov and are also a component of the NTDB subscription service noted below.

National Trade Data Bank (NTDB)

The U.S. Commercial Service contributes to the NTDB, a one-stop source of international documents, including market research reports, trade leads and contacts, statistical trade data collected by federal agencies that contains more than 200,000 trade-related information, and Country Commercial Guides. The NTDB subscription may be purchased on CD-ROM, at http://www.stat-usa.gov, or is accessible free of charge at federal depository libraries. Call 1-800-STAT-USA for more information and ordering instructions.

Export Prospects

Platinum Key Service

The Platinum Key offers customized, long-term assistance to U.S. companies seeking to enter a new market, win a contract, lower a trade barrier, or resolve complex issues. Fees depend on the scope of work.

Flexible Market Research (FMR)

FMR provides customized responses to questions and issues related to a client's product or service. Available on a quick turnaround basis, the research addresses overall marketability of the product, key competitors, price of comparable products, customary distribution and promotion practices, trade barriers, potential business partners, and more. Fees vary according to scope of work.

International Partner Search (IPS)

IPS provides a customized search that helps identify well-matched agents, distributors,

licensees and strategic alliance partners. Fees vary by country.
Export Promotion

International Buyer Program (IBP)

IBP, supporting 28 major domestic trade exhibitions annually, undertakes for each show a worldwide promotional campaign aimed at maximizing international attendance through work with the overseas network of Commercial Service and Embassy offices. Qualified buyers and prospective distributors, many brought as part of delegations led by overseas commercial staff, are assisted in meeting with interested exhibiting firms and provided services aimed at helping them find new suppliers and trade partners. Each show features an international business center at which export counseling, matchmaking, interpreter and other business services are provided to international visitors and exhibitors.

Video Conferencing Programs

The "Virtual Matchmaker," "Video Gold Key," and "Video Market Briefing" programs provide an effective tool to help U.S. companies assess an overseas market or overseas business contacts before venturing abroad to close a deal. Companies can use these cost-effective video services to interview international contacts, get a briefing from overseas industry specialists on prospects and opportunities, or develop a customized solution to international business needs.

Gold Key Service

The Gold Key is a custom-tailored service for U.S. firms planning to visit a country. This service provides assistance in developing a sound market strategy, orientation briefings, introductions to pre-screened potential partners, interpreters for meetings, and effective follow-up planning. The fees range from $150 to $700 (for the first day) per country.

BuyUSA.com

BuyUSA.com (http://www.buyusa.com) is a unique public/private partnership between the U.S. Commercial Service and IBM. It established a one-stop international marketplace for U.S. small to medium-sized enterprises to identify potential international partners and transact business on-line. The BuyUSA.com e-marketplace includes managed/targeted trade leads, on-line catalogs, automated searching and sourcing, financing, logistics, currency conversion, due diligence, landed-cost calculation, and tariff and duty calculation. BuyUSA.com is the only Web site of its kind to combine an on-line interface with a worldwide network of one-on-one trade counselors.

Product Literature Centers

This program showcases U.S. company product literature through exhibits in international trade shows held in both mature and emerging markets. The Product Literature Center is a low cost, efficient way for small and medium-sized firms to get worldwide sales leads in their particular industry. A Commerce Department industry/international specialist or the U.S. Embassy operates

Product Literature Centers. Visitors to Product Literature Centers are required to register and may take company literature with them. All sales leads are sent directly to the Product Literature Center participant.

Multi-State Catalog Exhibitions Program

This program showcases U.S. company product literature in fast-growing markets within a geographic region. The U.S. Department of Commerce and representatives from state development agencies present product literature to hundreds of interested business prospects abroad and send the trade leads directly to U.S. participants.

Commercial News USA (CNUSA)

CNUSA, a catalog-magazine containing advertisements of U.S. products, is published 12 times per year by the Commercial Service through its private-sector partner, ABP International, to promote U.S. products and services to more than 400,000 potential buyers and partners in 145 countries.

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http://www.duesseldorf.de/economic/welcome/shtml

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U.S. DEPARTMENT OF COMMERCE, INTERNATIONAL TRADE ADMINISTRATION - THE U.S. COMMERCIAL SERVICE

U.S. Department of Commerce/International Trade Administration staff located in the U.S. Embassy in Paris are responsible for providing U.S. SME exporters with a full range of assistance in researching, entering and expanding in the French market.

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RELEVANT AMERICAN CHAMBERS OF COMMERCE ABROAD

The U.S. Chamber of Commerce is the world's largest business federation, representing nearly three million companies, 3,000 state and local chambers, 850 business associations and 87 American Chambers of Commerce abroad. Among other goals, American Chambers of Commerce abroad seek to promote bilateral trade, direct investment, technological transfer and other special items of mutual interest between foreign countries and the United States, and to supply U.S. business with placement services and information on trade opportunities and foreign economies. The U.S. Chamber of Commerce's main web site is http://www.uschamber.com.

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SELECTED IT AND TELECOMMUNICATIONS TRADE EVENTS IN GERMANY AND FRANCE

Participation in trade fairs is one of the most cost-effective ways of testing a foreign market's receptivity to a product, investigating competitors, and of finding customers or potential agents and distributors. In Europe, participants use trade fairs to do business, not merely to advertise their products.

The fairs listed below are some of the major ones in Germany and France. They are international in scope, giving visitors, buyers and exhibitors alike the foundation needed to start business relations. For a complete list of IT, telecommunications, and related trade fairs in western Europe and elsewhere supported by the U.S. Department of Commerce, see http://www.usatrade.gov. In addition, the Department's Office of Information Technologies' web site (http://exportIT.ita.doc.gov) lists IT-related trade fairs, and the Office of Telecommunications Technologies' web site (http://telecom.ita.doc.gov) lists telecommunications-related trade fairs.

U.S. Department of Commerce personnel participate in many of these trade fairs with, or on behalf of, U.S. firms, offering them market promotion and additional services, such as trade lead generation. These trade promotion events facilitate participation at prices far below regular trade fair participation costs or offer additional services not elsewhere available. In addition, U.S. firms on the waiting list for exhibit space, or not interested in exhibiting but needing qualified assistance and meeting rooms at specific trade shows, should contact the Department's commercial specialists in the particular country (see Contacts) to discuss options.

GERMANY

German trade fairs, due to their international significance and large attendance, provide an excellent vehicle for introducing new technologies and products and present a gateway to both the markets of the EU and eastern Europe. Unlike most North American trade fairs, the typical German fair is much larger, represents virtually an entire industry, and is a highly successful sales point. German trade fairs attract heavy attention from worldwide buyers.[391]

[391]There is a growing tendency in Germany for suppliers of IT products and services to also exhibit at vertical industry-focused trade-shows. Information on vertical industry-specific shows can be obtained by contacting local U.S. Department of Commerce Export Assistance Centers or trade specialists (see http://www.usatrade.gov for a listing of U.S. Department of Commerce offices around the United States).

CeBIT

DESCRIPTION OF EVENT: CeBIT is the world's largest trade show for computers, software, telecommunications, and office automation. Approximately 750,000 visitors and 7,500 exhibitors from 60 countries attend the show, which has 26 halls. This trade show is very important to U.S. firms. The competitiveness of U.S. products and the large number of international buyers make CeBIT popular among U.S. IT and telecommunications firms.

DATE: Every March
PLACE: Hannover, Germany
CONTACT: Joachim Schaefer, President
Hannover Fairs USA
103 Carnegie Center
Princeton, NJ 08540
USA
Tel: 609-987-1202
Fax: 609-987-0092
Email:jschafer@hfusa.com
Event Web Page: www.cebit.de

European Banking Technology Fair

DESCRIPTION OF EVENT: A trade show for the financial community of Europe. The event also includes a policy conference on the European Monetary Union, information technology and the globalization of financial markets.

DATE: Every October/November
PLACE: Frankfurt, Germany
CONTACT: Elizabeth Powell
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Siesmayerstrasse 21
D-60323 Frankfurt
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Tel: 49 69 9562 0417
Fax: 49 69 561114
Email: elizabeth.powell@mail.doc.gov
Event Web Page: http://www.eurobanktech.com/

INFOBASE
DESCRIPTION OF EVENT: An annual trade fair showcasing databases, online services, communications technology, and software for personal and mainframe computers. The fair is rather small (216 exhibitors and 6,000 visitors attended in 2000) and specialized, in comparison to larger fairs such as CeBIT. It is a key show for companies interested in selling software "online."

DATE: Every May
PLACE: Frankfurt, Germany
CONTACTS: Messe Frankfurt GmbH
Ludwig-Erhard-Anlage 1
D-60327 Frankfurt
Germany
Tel: 49 69 7575 6586
Fax: 49 69 7575 6433
Email: infobase@messefrankfurt.de
Event Web Page: http://www.infobase.de

Internationale Funkausstellung (International Consumer Electronics Show)
DESCRIPTION OF EVENT: This biennial show's main product groups include computer software, multimedia, and online services in addition to the traditional audio-visual and television/cable technology sections.

DATE: Every other August/September
PLACE: Berlin, Germany
CONTACT: Messe Berlin GmbH
Messedamm 22
D-14055 Berlin
Germany
Tel: 49 30 3038 0
Fax: 49 30 3038 2325
Email: central@messe-berlin.de
Event Web Page: http://www.ifa-berlin.com

Internet World
DESCRIPTION OF EVENT: An annual trade fair focusing on Internet-related hardware and software.

DATE: Every May/June
PLACE: Berlin, Germany
CONTACT: ComMunic GmbH
Konrad-Celtis-Strasse 77
81369 Munich
Germany
Tel: 49 89 7411 7270
Fax: 49 89 7411 7279
Email: messe@internetworld.de
Event Web Page: http://www.internetworld.de

SYSTEMS
DESCRIPTION OF EVENT: This fair is held annually in Munich and is achieving major growth rates with respect to exhibitors and visitors alike. It is one of the major German computer exhibitions and is attended by most of the world's computer and communication products manufacturers.

DATE: Every November
PLACE: Munich, Germany
CONTACTS: Messe Munchen GmbH
Messegelaende
D-81823 Munich
Germany
Tel: 49 89 9492 0361
Fax: 49 89 9492 0369
Email: poellmann@messe-muenchen.de
Event Web Page: www.systems.de

FRANCE

Antennes et Collectivites Reseaux (Cable and Satellite Trade Show)
DESCRIPTION OF EVENT: France's leading cable and satellite event bringing together cable and satellite hardware and software manufacturers, importers, distributors, TV and radio channels and service companies. Products displayed include TV and home theater centers, TVRO/DTH analog and digital, SMATV and CATV, interactive technology, scrambling equipment, MMDS, accessories, components, lab and test equipment, maintenance equipment, data transmission, TV and radio channels, operators, and subscription networks.

DATE: Every August/September
PLACE: Paris, France
CONTACTS: Reed Exhibition Companies
Paris
France
Tel: 33 1 41 90 47 56
Fax: 33 1 41 90 48 59
Email: antennes@reed-oip.fr
Event Web Page: http://antennes.reed-oip.fr

Cartes
DESCRIPTION OF EVENT: This trade fair, international in scope, focuses on information security and smart card technologies.

DATE: Every November
PLACE: Paris, France
CONTACTS: Sophie LUBET
Market Manager
Tel: 33 1 49 68 52 66
Email: slubet@exposium.fr
Event Web Page: http://www.cartes.com

COMDEX Paris

DESCRIPTION OF EVENT: This IT trade fair averages 500 exhibitors and 45,000 professional attendees.

DATE: Every March
PLACE: Paris, France
CONTACTS: Charles Defranchi
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Event Web Page: http://www.comdex.com

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or see http://telecom.ita.doc.gov

WTO Information Technology Agreement:
1) Danielle Kriz
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or see http://www.export.gov/safeharbor

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Tel: 301-975-4040/4038/4036/5155
Fax: 301-975-2128
Email: ncsci@nist.gov
Web address:
http://ts.nist.gov/ts/htdocs/210/217/bro.htm

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The telecommunications and IT annexes of the U.S.-EU Mutual Recognition Agreement (MRA):
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EU directives:
1) The U.S. Department of Commerce's National Institute of Standards and Technology publishes "Information Guides on European Directives."
see http://www.tcc.mac.doc.gov/cgi-bin/doit.cgi?204:52:167442015:332

2) Martin Whitehead
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Global Crossing/Germany and EU
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